Manual v4.1

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Contents

Contents 2
Welcome to Steel Panthers: World at War 4
Installing the game 5
Tutorial For Steel Panthers: World at War 6
Getting Started 6
Experienced Players Guide 18
  General Changes 18
  Game Changes 20
  Preferences Screen 23
Changes to Game Play 28
  New Victory Conditions 28
  Reinforcement Request 29
  Movement 29
  Weather 30
  Spotting 30
  General Combat 30
  Campaigns 37
Changes to the Armor Combat System 38
National Characteristics 39
Commandos and Partisans 41
New Terrain Types 41
New Battlefield and Obstacle Effects 43
  Long World War II Campaign 43
  New Countries 44
  Editor Changes 44
  Encyclopedia Changes 46
Detailed Player Guide 47
  The Selection Screen 47
  Choosing Scenarios and Campaigns 48
  Playing a Scenario 48
  Playing a Campaign 49
  Playing a Battle 49
  The Game Editor 49
  Load and Save Games 49
  The Battle Map Toolbar 50
What the Numbers Mean 53
Movement 56
Unit Status 60
Spotting 61
Limited Intelligence 61
Combat 62
  Opportunity Fire (OpFire) 65
  Terrain Effects on Movement and Combat 67
  Combat Results 68
  Rally 69
  Armor Damage 70
  Indirect Fire 71
  Air Support 74
  Gliders and Paratroops 75
  Special Forces and Guerrillas 76
Command Control and Orders 77
Entrenchment 81

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Ammunition 82
Order Of Battle Editor……..84
Playing Scenarios and Campaigns 88
The Purchase System 88
Battle Generator 90
Deploy Units 92
Unit Configuration 94
Scenario Editor 95
Editor Deploy Screen 98
Build a Map 100
Tutorial: Designing Your Own Scenarios 101
Working with Waypoints 112
Using Beach Assault & River Crossing Scenario Maps in SPWAW generated battles. 113
How to Convert SP1 Scenarios into SPWAW Scenarios 114
Tools 114
Step by Step Instructions 115
DESIGN YOUR OWN CAMPAIGN 118
User Campaign Editor 120
FAQ 123
Questions about playing the game 123
Questions about scenario designing 131
Design notes 136
Abbreviations 146
Glossary 148
Hotkeys 149
Deploy Screen Keyboard Equivalents: 149
Hot Key Only On Deploy Screen: 149
Battle Map Screen Keyboard Equivalents 149
Map Editor Keyboard Equivalents: 150
Hot Key Only on Map Editor Screen 151
Credits 152

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Introduction
Welcome to Steel Panthers: World at War

Steel Panthers: World at War adds a new chapter to the popular Steel Panthers series from designer Gary Grigsby and published by Strategic Simulations Inc. Though SP: WAW is based largely on Steel Panthers game system, it is far more than a sequel. It transforms a classic DOS game into a Windows format that can be easily played on most computers. It richens the tapestry of combat with enhancements to armor, infantry and artillery, and more faithfully representing WW2 combined arms warfare than previous versions. The sound and graphic enhancements add a whole new dimension of immersion into the game.

So, climb into the turret and take command. You make the decisions as you command individual tanks, guns and squads of infantry. Your battlefield is the era of World War II, from the Japanese invasion of China in 1930 to the hair-trigger standoff between Communism and the Free World in 1949. Choose from the forces of twenty-seven nations as you maneuver over a wide range of terrain, from the steppes of Russia to the island jungles of the Pacific.

SPWAW comes with more than 50 scenarios as well as several long campaigns. Players may also create their own battles using the game's powerful Editor. Games may be played against the computer, face-to-face, by E-mail and over the Internet.

What Comes with This Game?

SP: WAW is a stand-alone game. You don't need any prior versions of Steel Panthers. The game is available as a downloaded Zip file from the Internet, or it can be found in future issues of PC Gamer, Computer Gaming World and Computer Games magazine. Also included is the new Matrix games Network software for online gaming and a set of utilities from Fred Chlanda for editing scenarios and maps, converting scenarios from earlier game versions and for editing the game graphics. Updates are available through our web site at http://www.matrixgames.com. Check there to ensure you have the most up to date version of the game!

How to Read This Manual

If you are new to the Steel Panthers experence, proceed step-by-step through the Tutorial section of the manual. It will familiarize you with the basic controls and concepts of SPWAW. If you have mastered the Tutorial or are already a battle hardened fan of Steel Panthers, you can start with the Experenced Player Guide**.** If you are an experienced Steel Panthers player but want a refresher on the rules, take a look at the Detailed Player Guide**.** A glossary at the end of this manual defines commonly used terms in the game, while the latest updates will be reflected in the Readme.txt file.

Copy Protection

There is no copy protection for SPWAW.

Operating System and Hardware Requirements

SPWAW is now a native Windows program that uses Direct Draw and Direct Sound. It will play on all Windows O/S including ME Millenium, Windows 2000 and NT. Players must have Direct X 6.1 or better installed on their computers. The program has been tested on systems with as little as 32 MB of RAM. But it was developed on a system with 64 MB, so we recommend at least that much RAM. No hardware graphics acceleration was programmed and on some systems best

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results are obtained turning hardware acceleration off, but 3D sound card enhancement is recognized and utilized.

Screen Resolution

The screen resolution of the game has been changed from 640x480 to 800x600. This increase in screen space allows for more controls, buttons and better spacing. It also makes icons appear sharper and allows users to a larger slice of the map in the Battle Map. The game automatically sets this screen resolution. You should not need to change screen resolution prior to playing the game.

Scale

Each terrain tile in the game (called a hex) is about 50 yards across, and each turn represents a few minutes. All movement rates, sighting routines, command and control ranges, communications ranges, weapon ranges and unit frontages have been adjusted accordingly. Units are individual vehicles and heavy guns, small groups of light mortars, and teams or squads of infantry and heavy weapons from 2-20 men strong. Shots by units typically represent individual rounds for tanks and artillery, and bursts of 5-10 rounds for small arms and automatic heavy weapons.

Running SP: WAW

To start the game either double-click on spwaw.exe or use the Steel Panthers: World at War icon found under the Windows Start and Program buttons.

Languages

SP: WAW is available in English, Finnish, Polish, French, German, Spanish, Italian and Danish. Other languages will be included in the future.

Installing the game

SP: WAW version 4.1 is available as a very large (345 MB) dowload from the Internet, Version 3 and 4 on the game CDs included with several popular computer gaming magazines. To install, click on SPWAWcomplete.exe and Setup will begin. This method requires about 700MB free on your computer to install. If you have the setup file itself on a CD (through a game magazine or some other CD distribution method), then you need about 350MB to install. Updates are available through our web site at http://www.matrixgames.com.

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Tutorial For Steel Panthers: World at War

by "Wild Bill" Wilder

Getting Started

To start the game either double-click on spwaw.exe or use the Steel Panthers: World at War item under the Windows Start and Program buttons.

The first screen you see after the intro is a screen allowing you to continue or exit. "Online Play" is for playing multiplayer online, while "Timed Play" is for playing vs the AI or Hotseat under time pressure (your turn ends after a preset time period and is automatically saved). Go ahead and click on "Solitaire Play."

The Selection Screen

This is where we begin. This screen is the Selection or main screen of the game. It's like a crossroads, where you can branch off in various directions. If you look on the right side of the screen, you'll see a list of scenarios and long campaigns. Other buttons allow you to create your own scenarios and even peruse through an encyclopedia that offers data on the weapons in SPWAW.

For now, click on the "Scenario" button. You'll see a long list of the scenarios – each an individual battle. Click on the Tutorial scenario in the first slot. Now you'll see a body of text in the center of the screen. This briefs you about the background of the battle, the countries involved, how long the battle lasts and other details. Once you have finished reading the background text, click on "Start."

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Player Control Screen

Now there's a new screen with two toggle switches that determine which sides are played by human or computer opponents. For now, leave the buttons as they are. In this tutorial, you will command a U.S. Army tank and infantry force, while the computer opponent will command the German forces. Click on "Continue."

The US Army Screen

The Set-Up Screen for the U.S. forces – *your* forces – is now displayed. You have several choices, including starting the game, saving it to be played later, Quitting Orders (which skips your turn and lets your opponent move), adjusting the advantage given to the computer AI (Artificial Intelligence) or exiting the battle completely. If you want to continue, just click on "Start Turn." Changing the AI level give the AI increased experience and morale benefits that make it a tougher opponent. It does not change how the AI plays its game.

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The Battle Map

The Battle Map is where most of the action will occur. It gives you a top-down view of the battlefield, as if you were in an airplane overlooking the fighting. You can see your troops, the enemy forces and the terrain you'll be fighting over.

Take a second to look around the map. Move the cursor towards any map edge, and the screen will scroll in that direction. Your battlefield here is a section of French countryside during July 1944, a few weeks after the Allied armies splashed ashore at D-Day. You'll find farms, a small town, and hills on either end of the map, a small stream to the left and an open valley in the center of the map. Notice that some spots (the ones marked with an American, German or "V" flag) are labeled as Objectives. Those are the locations you must capture to win the game. Hover the mouse over them and you will note that they award points at game's end. There are other ways victory hexes can award points, they are described further on in the manual.

You can zoom in or out using the two buttons marked like magnifying glasses, or use the plus and minus keys on your keyboard. The + button or key will zoom in for a close-up view, while the minus will zoom back out. There are four zoom levels in the game.

A quick way to move about the main map is to use the mini-map in the bottom right corner. Your troops are displayed as white dots, the enemy (when you spot them) will appear as red dots and the victory objectives (which you must capture to win) are shown as green dots. Click anywhere on the mini-map, and that spot will appear in the center of the main map. Note the small rectangular buttons on the top and bottom of the mini-map. Sometimes the Battle Map is too large to display in a single mini-map. In that case, the top left and bottom buttons will be green. Clicking on them will scroll the mini-map. If those buttons are red, then only a single mini-map is used. In either case, the top right button will center the mini-map on the current selected unit. In the top right corner of the main map, you'll see a box, labeled "Battle Conditions," with a picture of some trees in it, which indicates clear weather. In bad weather you will see rain, fog or snow. Put the cursor on it and you'll see that you're in the first turn of the game, and that you have about 15 turns before the game ends. You'll also see the visibility, your mission (Advance on a crucial

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objective), the date and the weather.

To the right of the screen is the rectangular menu bar with a series of buttons. This is where you issue orders to your forces. Placing the cursor over each button will display a text box describing the function of the button. Note the two arrow buttons at the bottom of the menu bar. The top one gives you the option to exit the current game and return to the Selection screen, where you can restart or exit SPWAW. The bottom button ends your turn. You'll always be given a "yes" or "no" option to end the turn or game. If you want to pause the game at any time, hit ALT and TAB together and windows will minimize SPWAW and take you to another application or the desktop. Sometimes you will have to hit ALT-TAB a couple of times before the screen switches. To return to the game, click on the SPWAW button on the task bar.

Now click on a narrow bar, below all the buttons, called Preferences.

The Preferences Screen

Now you've entered the nerve center of the game, where you can customize SPWAW to play just the way you wish. All of these features are explained in more detail later in the SPWAW manual.

One button that will definitely affect play is the green "Command Control" button. Look for it under

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"Realism Preferences." Clicking this button to "on" will recreate some of the problems that real commanders faced in controlling their forces. Another is "OpFire Confirm" This will allow you choose whether to take advantage of an Opfire Opportunity or not. For now leave this off and let the computer decide.

For the tutorial, make sure "Command Control" and "OpFire Confirm" clicked off. Then click on "Exit" to return to the Battle Map.

Unit Information Screen

Now that you've learned something about the game controls, it's time to meet the troops you'll be commanding. On the Battle Map, you'll see a unit of six tiny infantrymen outlined by a red hexagon outline. That's the A0 unit – the headquarters for your entire force (the "A" indicates it belongs to Formation A, while the "0" shows that it's a headquarters unit). In a sense, YOU are the A0 unit, in command of every American unit on the map. But you also have an on-map headquarters unit. When a scenario begins, the cursor automatically flashes on your A0 unit. Take care of him – he's very important.

If you are not centered on the A0, don't worry. We'll get back to him.

At the bottom of the Battle Map, you'll see some brief information on the highlighted unit, such as stance, number of shots it can fire, and how far it can move. For now, right-click on the AO, or any other unit. This takes you to the Unit Information Screen.

There's a lot of important information here. This screen gives you very specific data about a unit, such as the types of weapons it carries, the ammunition and whether it is equipped with a radio. Equally important, it displays the morale and experience of the unit as well as the skills of the leader commanding it. The higher these numbers are, the better the unit will perform in battle. Note that while vehicles will display different information than personnel units. Foot soldiers aren't

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armor-plated.

our Forces

But just what units do you have? Click on the notepad button in the center of the buttons on the right. This is the Unit Menu, which gives you a quick way to check the status of your forces, their current movement and combat capabilities, and other vital data. Note that a M3A1 half-track – unit A1 – is listed as destroyed. Don't worry about it or the wrecked and burning half-track on the Battle Map – they're there for show.

The letter/number label helps determine what formation a unit is part of. Units with the same letter are in the same platoon. With the Command and Control turned off option, keeping formations together can help, but is not crucial to success. With Command and Control turned on, keeping formations together is critical. If the unit name and number are green, then the unit is in communication with its formation leader and can be rallied. If it is in red, it is out of communications.

Click on any of the gray buttons on the left of the screen – it will take you to the Battle Map and highlight in red whatever unit you've selected. You'll notice that at the bottom of the screen are listed a battery of 105-millimeter howitzers and two P-47D fighter-bombers. Although you decide what targets they shoot at, you can't move them (they're located in the rear, off the map). They are assigned targets using the artillery menu. Only formation leaders (those ending in "0") and Forward Observers can call in artillery.

Now use the Unit Menu to go back to unit A0.

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The Buttons

Most of the commands you'll issue throughout the game, from moving units to calling in artillery and air strikes, will be given through the buttons on the Menu Bar to the right of the Battle Map. You'll notice two things about the menu. First, hovering the mouse cursor over a button will display a small text box that tells you what the button does. Second, most of the buttons are marked with a small letter that corresponds to a keyboard command. To cycle between units, for example, you can click on the top left button or hit the "N" key. If a button is totally gray, then the unit can't perform that action.

Getting Ready to Fight

What are you trying to accomplish in this battle? In SP: WAW, you have two goals. The first is to destroy the enemy before he destroys you. Every enemy unit you kill gives you victory points equal to its point cost. Every unit you lose gives points to your enemy.

The second goal of every battle is to capture (or keep, if you already own them) various objective areas. There several new ways victory hexes award points; in this case they are awarded to the side to occupy them at the end of the game. Go to the Preferences Screen and click on the green bar, in the upper left column, marked "Hex-Grid On." When you exit back to the Battle Map, you'll see that the map now has an overlay of hexagons. Each space on the SPWAW map is a hexagon ("hex" for short) representing about 50 yards of ground.

In this scenario, the map measures 100 hexes from side to side and 80 hexes top to bottom, or 5 kilometers by 4 kilometers. You can turn the hexagons off again if you want a more aesthetic view of the map.

The locations you'll need to capture in this battle are several vital crossroads around the village of St. Lunaire. In this battle you'll find Objective One at hex 41, 24 on the map (those numbers are the vertical and horizontal coordinates, just like you see on a road map). The U.S. flag on the objective hex shows that you already control it. On the other hand, the German flag at Objective Four at hex 71,22 shows that your opponent already controls that location.

However, the objectives at hexes 62, 6, 56, 24 and 51,33 have white boxes marked with a "V." This means they are neutral hexes that aren't controlled by other side. To win the game, you'll have to capture the neutral and German-controlled objectives while retaining control of the one you start with. Be warned that your computer opponent will be trying to do the same thing to you.

How much are the objectives worth? Run the cursor over each one and you'll discover that the three neutral hexes in the middle of the map are worth 900 points apiece, while the other two are worth 250 points. That tells you right away what your priorities should be as commander.

You take control of an objective that is not yours by moving through it with one of your units. When you do this, the flag will immediately change to reflect that it is yours. And since it is yours, its points belong to you as long as it remains yours till the end of the game. If, however, the enemy retakes it, then those points are his unless you take the hex back.

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Let the Battle Begin

Now it's time to issue orders to your troops. First, we'll load your foot soldiers into transport vehicles. In this tutorial, the first thing you want to do is to load your infantry onto the transport provided for them. First move your cursor to the hex where your A0 leader unit is. If you have a hard time finding it, go to the "Unit Menu" button, open it, and click on AO. That will take you to hex 36,26.

You'll want your headquarters to climb aboard half-track unit J0, which is in the hex to the right. But wait a minute. Your half-track can't give the foot soldiers a lift unless they both occupy the same hex. To order a unit to occupy a hex that already has a friendly unit, hold down the shift key while clicking on the destination.

Click on the A0 unit. It should be highlighted with a red cursor. Now hold down the Shift key and left click on hex 37,26, where the half-track is. You'll see and hear the HQ unit move there.

Be sure that the A0 unit is still highlighted, and not the half-track. You can verify that because the A0 unit's information should be displayed at the bottom of the Battle Map. Or, information on the A0 will pop up when you hover the cursor over the hex.

Now click on the Load button or press the "L" key, and then click on the half-track in the hex. The A0 should disappear. Now it's loaded on the half-track. Click on the Half-track and the last unit loaded will appear in the information window.

The rest of your infantry – the ones that show several little soldiers – should also be loaded on to the nearest half-tracks. Once you have finished, load the bazooka, mortar and machinegun units.

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Units F3 and F4 (a mortar and a machinegun unit) will both climb aboard half-track F11. Remember that your half-tracks have limited space, so you can't cram all your troops aboard one vehicle. If a unit is too large to fit on a given transport, a dialogue will ask if you want them to load anyway. If you say yes, the excess will be lost and considered destroyed.

You also have an anti-tank gun in hex 33, 29. The half-track that will carry it is in hex 34.29. Anti-tank guns can't move by themselves, so this time you'll have to move half-track F8 to the gun's hex. Then highlight the gun and load it. Transports are rated for the size gun they can tow. If the carry value is 1xx, it can tow a 1xx-weight (lt. or medium) gun. If 2xx, then it can carry a 2xx weight (heavy) gun.

But the half-track now has its rear pointed to the enemy, exposing its thin rear armor. You should always try to keep the front of your units facing toward the enemy. To change the direction of the half-track, put the cursor over it, left-click to select it, then move the cursor to a spot away from the unit, in the direction you want it to face, and right click on an empty hex. Now it's pointed in the same direction as your other units.

When you right clicked to redirect your half-track, a swath of hexes may have been highlighted. The highlighted area is showing you the line of sight for the half-track – in other words, the hexes that it can see and shoot into. You can clear the darkened area by clicking on the paintbrush button on the Menu Bar, or hitting the "u" key.

If you loaded everyone properly, your screen should now look like this. Notice that the hex grid still is on. Turn if off from the Preferences Screen if you'd like.

Follow Me!

Your troops are aboard their vehicles, the engines are idling, the men are tense and it's time to move out. But where is the enemy? You don't see him on the map, and there's a good reason why. SPWAW recreates the uncertainty of battle by using a Fog of War system. You don't know where the enemy is unless you spot him, and your chances of spotting him depend on factors such as experience, terrain and weather. Just remember that your enemy doesn't know where you are either.

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This tutorial is a Meeting Engagement, in which both sides basically are headed for the same objectives. Your paths will cross. There will be fighting. But you can give yourself an edge by anticipating the enemy's plans and cleverly moving your troops. Recon troops are especially important to scouting out enemy positions. Select an armored car and right click or press the space bar. You will notice a note near the bottom of the first column that indicates the armored car is a Recon unit. So what do you do? Do you move your entire force together toward one objective hex? Do you split up your group into smaller sections and head for all of them at once? Decisions, decisions! But that is your job as commander.

Fire!

Here's a quick lesson in the movement and combat systems of SPWAW. First, left click on tank B1 in hex 40, 24, and highlight the vehicle. Who commands this tank? What kind of leader is he? Simply right click on the tank and you'll see Sgt. Lopez commands it. He seems to have courage (his morale is relatively high), but he is a little low on experience.

You're going to order this tank to move straight down the road to hex 45, 24 (six hexes away). To move the tank, you don't have to click on each hex in that row. Simply left-click on tank B1, then left-click on hex 45.24. Now watch it move. What happened when it got to the hex? Some Germans hidden in those trees next to the road took a potshot at it. It is likely that one shot did not give your troops enough information to spot from which the enemy is firing. You have to be careful moving a unit a long distance in a single "click" as enemies in your path will tend to get the jump on you. Moving the units of a formation in small "bounds", rather than the full extent of their movement at once, will pay off when moving into enemy territory.

Right click on the tank to see its status. The display at the bottom of the screen tells you that it has a Suppression Level of 1, but is otherwise undamaged. Suppression is a measure of how shaken your men are by combat. Units get bonuses to their hit chances when at 0 suppression. Units accumulate suppression points for a wide variety of reasons, from thinking the enemy is nearby, to being shot at or seeing a friendly unit get wiped out. Suppression can go as high as 99 and each time a leader successfully rallies, it is cut in half. Suppression reduces your hit chances, and can cause your troops to become pinned, retreat or rout as suppression becomes larger relative to the unit's morale.

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But what about the enemy? You can't see him, but you know he is in that patch of woods. Are there other enemy units with him? Do you move closer or wait to bring up help? Should you deal with this threat, or continue on to the objective hexes? Again you are faced with tactical command decisions.

First, turn tank B1 toward the enemy. Right-click on one of the forest hexes from which the shot originated. Your tank will turn in that direction. It was a pretty big "bang" so it must have been an antitank weapon (SPWAW has different sounds for different weapons, which helps you identify what's shooting at you).

Well, we know the enemy is there, and we don't want him continuing to fire, so we had better take care of him. Let's move an armored car - - the M8 Greyhound D0 in hex 42, 25 -- to hex 45, 25. No fire. Okay, we'll bait the enemy a bit by moving closer. One vehicle will move while the other watches and provides cover fire. There is a chance that enemy units will fire at moving troops ("opportunity fire"), depending on their experience, weapons and the type of target they encounter. At the bottom of the Battle Map, you will notice that the currently selected unit will have a * or # beneath the information on their headquarters link (the same symbols also appear on the list of units in the Unit Menu). A * indicates your unit has been spotted by the enemy. They may not know exactly where the enemy is, but they've heard voices, or perhaps a tank engine revving, so they know their opponents are nearby. If you think the enemy is in a specific hex, but can't actually see them, you can take a blind shot by using the "Z" key. However, your fire won't be as effective.

Move tank B1 from hex 45, 24 to hex 45, 23. The enemy fires again, but we still can't see him. Notice that he fired with both anti-tank and rifle fire (many units are armed with multiple weapons). The problem is that it's hard to spot small units such as snipers, recon squads and anti-tank teams. We'll now move Greyhound D0 from 45, 25 to the hex where the Sherman was, hex 45, 24. Nothing. Move again to hex 44, 23. Wham! He fires again. Your armored car may or may not survive – as in real life, combat is unpredictable -- but now at least you are likely to have seen see your foe. He is in the trees in hex 44,21. Move the cursor over him and right you find it is a Panzerschreck team armed with anti-tank rockets. These weapons are deadly to armor but little danger to infantry.

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So what do you do? Again, you'll make those choices that will determine victory or defeat. Should you move infantry in to do the job? Should you bring them inside the half-track and dismount nearby (thereby exposing the half-track), or dismount the infantry now and wait while they move on foot to the battle site? Should you simply blaze away with your tank and armored car? Let's try that. First we will fire with the B1 tank. Left click on the tank, then left click on hex 44, 21. The tank will fire its main gun and its machine gun at the sighted enemy. If you look at the bottom of the screen you'll see how many times the tank can fire its weapons in this turn.

The four numbers labeled "Shots" indicates how many shots it can fire from each of its weapons. It probably has two shots it can fire from its cannon, and five shots from each of its three machine guns. Let's fire on him again. Use the same procedure. We'll continue to fire all weapons until we use up all of B1's shots for this turn. Note that not all the weapons may fire every time. How many weapons the unit can coordinate in one "fire order" depends on the experience of the unit. That should pin the enemy down and prevent him from firing at you. If B1 doesn't eliminate him or force him to retreat, then bring up your armored car and other troops to finish the job. Remember that using all your shots in your turn will leave you fewer opportunity fire shots during your opponent's move. You get some shots returned at the end of your turn, and can be awarded "special" shots in some circumstances even if you have none, but the more you have the more responsive your units will be during the enemy turn. Always moving at high speed around the battlefield and shooting every chance you get can lead to breakdowns.

Move the rest of your units cautiously. When you're done with your turn, click the "sideways" arrow button at the bottom of the Menu Bar. The enemy will then move, and you'll hear the sounds of movement. You might even spot the enemy on the map (they'll also appear as red dots on the mini-map).

We'll stop the tutorial here. You've learned the basics of SPWAW. You'll have many more questions, but you'll find the answers in the remainder of this manual.

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Experienced Players Guide

If you are already an experienced player of the Steel Panther series, then the rules that follow will help you jump into the game quickly.

General Changes

Unit Scales

Though SP: WAW is based on the Steel Panthers III game system, its unit scale is closer to Steel Panthers I. Units represent individual vehicles, guns and squads or teams of infantry and infantry heavy weapons. Unlike Steel Panthers III, vehicles and guns have a "+" symbol over the turret instead of the number of vehicles, thus not obscuring the vehicle icon. Infantry, however, still have their strength displayed over the unit, as long as the unit is not routed. The size of icons can be adjusted, with “XXX” (the default setting) being the largest.

Load and Save Games

Players may now save up to 1000 scenarios or saved games, compared to 200 in SP3. They may also have up to 32 user-defined campaigns at one time, rather than 14.

Map Changes

Players may now add description files to their custom maps. Custom maps may now be chosen for compter generated battles. Maps are now stored in a new Maps directory

Internet Play

Multi-player TCP/IP Internet play is now enabled! Anywhere from 2 to 6 players can battle against each other over the Internet, or a LAN. Gang up in a 5 on 1 fight or 3 against 3. Gamers can set a “Gamer Timer” this will be the amount of time each player has to finish his turn. Once the time is up the turn automatically moves to the next player’s turn. There are several other features described below to help control INTERNET play. To play TCP/IP select the “Online Play” button on the intro screen, it will prompt you to create or join and display your IP address. If you are running the game choose create, otherwise choose join and enter the IP address of the game you are joining. When all players have joined, the games creator will start. Creating a game is covered below.

Auto-Save - When Playing the game will auto save after each turn to slot 0 or 1.

Matrix Games Network [COMBATNET] - The release of SPWaW v4.1 will also be the grand opening of our Matrix Games Network. Aiding players in finding opponents online 24 hours a day. This new software add-on is client software that will connect you to the MGN network. It will auto start your game and find out your current ping rate and IP number. When you start your game it will pass the IP information to the game as well.

Matrix Games Wargamer HQ - League Play the way Mars intended it to be. Players can now play fast and hard to win cash and prizes. If you think you’re the best then play with the rest.

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Play-by-Email

You have a choice of playing head-to-head, playing an unsecured Play-by-Email (PBEM) game, or of playing a password-protected PBEM game. Password-protected games are saved in a separate Email directory for convenience and are fully encrypted. Three files, a ".dat", ".aux", and a ".cmt" file - are required to be exchanged. Follow the instructions that appear when you start or end a game. Note that in a scenario, both players must enter passwords before any play commences.

Secure PBEM games are now possible with battle generator games as well as scenarios. The number of secure PBEM games has been increased to 10.

> **WARNING:** Secure PBEM games save automatically, but the security can take a few extra seconds for Windows to write to the disk. So when playing a secure game, wait a few seconds after ending your turn before exiting the game or the encrypted file may not save. The ".dat" file, if opened in WordPad or other editor, should be gibberish. If you can pick out legible text, the file did not save. Reload the file your opponent sent and play it again, letting him know what happened. Players may want to "alt tab" out to check the file before exiting in tournament play to ensure this doesn't happen.

The security prevents most types of cheating, but to allow recovery from game crashes or mistakes, the security against replaying turns is not strong. You can see how many times your opponent started and ended his turns by hitting the "1" key. If the number of starts and ends is different, then your opponent has had some sort of crash, either accidentally or deliberately. This does not mean he is cheating, but you should note it. An uncanny knack for avoiding your minefields and ambushes, and a perpetual difference in loads and starts with no explanation, may be grounds to look for other opponents. On the other hand, equal numbers of loads and starts doesn't guarantee honest play. The Internet play being prepared for version 4.1 will provide the most secure venue for play. Secure play files can grow quite large, so for "normal" PBEM against trusted adversaries, you can save time and file size by not entering a password when prompted and simply hitting "enter". This saves the file as a "regular" save game in the save folder.

Head-to-Head versus PBEM

For head-to-head games and non-secure PBEM games, toggle both player control switches to human control, then click on "Continue." A screen will appear prompting the first player to create a password. If you want to play head-to-head, click on "Password" and then hit "Enter," without creating a password. You'll then be taken to the "Start Turn" menu. If you create a password, a PBEM game will be created and you'll be prompted to save the game (password-protected PBEM games must be saved into one of the first 10 save-game slots). The game will inform you which files to email to your opponent, who will in turn choose his own password. Players who trust one another, or just don't feel like using passwords, can opt to click "Exit" instead of saving the game. In this case, the games will be saved in the "Save" rather than "Email" directories, and no .aux files will be created. However, that means there's nothing to keep the unscrupulous from peeking at their opponent's deployment, replaying turns that didn't go their way, etc.

Floating Pop-out Boxes and Info/Chat Area

The floating pop-out boxes that show unit and map data, as well as combat results, now appear at the top of the screen if the "Floating map text" button is turned off in Preferences. The default setting is off. These boxes will no longer obscure units on the Battle Map. The area that used to contain ads, now contains the more important messages such as combat results. Not all text is repeated here, because of problems displaying numbers based on random draws, but you can now keep the text boxes off to speed play and still be informed as to important combat results

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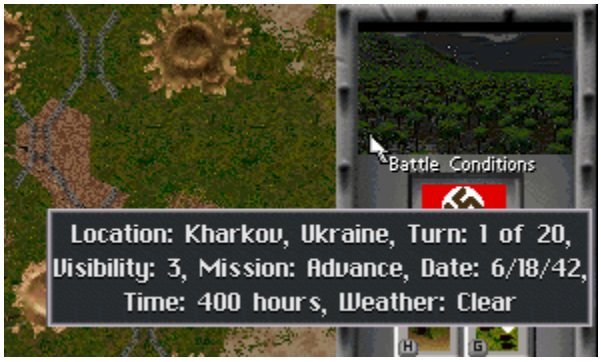
and the taunts of your online opponents. The F5 key will brig up the last 50 or lines of combat text/chat. The tab key activates and deactivates this area.

Combat Sounds and Music

In many cases, you will now hear very realistic sounds for the weapons the units are firing. You may use the new Order of Battle (OOB) Editor to change sounds and to assign a specific sound to a specific unit. It's a handy way to allow players to identify what's firing at them by the sounds they hear. Artillery with a smaller warhead will now make a smaller explosion sound. Roger Wilco and Battlecom voice support has been added allowing players on the Internet to talk to each other during game play.

Game Changes

- Maximum map sizes in the battle generator and the scenario editor have been increased to 100 hexes wide x 240 hexes high. In the scenario editor, you may choose a very large map by selecting "Custom" map size. You will be prompted for a size between 1 and 10. Selecting 0 to 2 produces the standard map sizes. Selecting 3 to 10 produces a map of greater height than normal, in increments of 20 hexes. In the battle generator, clicking the "Large" map button toggles through the various map sizes, from "Small" to "100x240". For very large maps, during deployment and game play, clicking the little green button at the bottom of the thumbnail will cause the map to scroll down 80 hexes and clicking the upper left button will cause the map to scroll up 80 hexes. If the map is displaying the very top part or bottom part of the map, the button will not be lit, indicating there are not 80 hexes left to scroll in that direction. During game play, there will be a green light on the upper right of the mini-map. Clicking it will center the map on the currently selected hex. Moving the mouse to the top or bottom of the screen will also cause the thumbnail to scroll, when the red rectangle on the thumbnail reaches the top or bottom of the visible portion of the map.


Battle Conditions
Location: Kharkov, Ukraine, Turn: 1 of 20,
Visibility: 3, Mission: Advance, Date: 6/18/42,
Time: 400 hours, Weather: Clear

- A landscape display is now featured in the upper right corner of the Battle Map. Hovering the mouse over it creates a pop-up box that indicates the battle location, current date, time (which changes each turn), weather, visibility, battle type, number of turns in the scenario and the number of turns left before the game ends. Weather sounds associated with the current weather should be playing, as long as the "Soundtrack" and "Weather and Combat FX" options are on. Once the first shots erupt in the scenario, you'll hear general combat sounds (the rumble of gunfire in the distance). Other display changes include:

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- The degree of armor slope for armored vehicles. This is in the Unit Information Screen, which appears when you right-click on a unit. Penetration tables for armor-piercing weapons. These also are displayed in the Unit Information Screen. The tables show, for each weapon, the maximum penetration in millimeters at various ranges and using various types of ammunition. Note that these figures are based on a flat, perpendicular shot for a T/D ratio ~1 (in other words, an ideal shot) and various factors will affect actual results). Ammunition with chemical or fragmentation warheads, such as HEAT (High Explosive Anti-Tank) and HE (High Explosive), will not have their effectiveness vary with range. However, small-caliber weapons, such as 12.7-millimeter machine guns and 20-millimeter anti-tank guns, are assumed to be firing a combination of HE and AP and are treated as firing HE against soft targets and AP against hard targets, despite the fact the are allotted only HE ammunition.

- The hot key for the “Select all units in formation” command has been changed to “A”,” while the button has been removed from the display. The hot key to “fire a specific weapon” has been changed to “C” and a button provided. To use this command, the firing unit must already have a target selected.

- Units ID tags have been added to help find where friendly and enemy units are located.

- “Command” has been changed in several places to “Com” to save space.

- The artillery barrage message delay has been reduced to one half the message delay set in the Preferences. This should speed up artillery barrages. Also, remember that if you hold down the “f” key during the barrage for a bit, the fast artillery option will turn on.

- Players can now also review the battlefield once a scenario is complete.

- Players when purchasing units will now be able to see remaining aircraft flights and mines. When purchasing units the top of the screen will show formations special code values and descriptions. You will also see the unit based Experience, Morale, Rally and Leader modifiers. The bottom of the screen will now show the units Maximum Penetration value and percentage chance of it having a radio.

- Reduced all default delays to none & make default maps small maps.

- The list of unique battle locations has been increased to 665.

- The artillery barrage message delay has been reduced to one half the message delay set in the Preferences. This should speed up artillery barrages. Also, remember that if you hold down the “f” key during the barrage for a bit, the fast artillery option will turn on.

- All Japanese leader names have been replaced by new names. (Many thanks to “Taki”)

- The “PAUSE” button (the one labeled “pause/break” next to the Scroll lock button, will pause the game. The Print screen button still has problems though, so a third party screen capture program is required.

- HQ units now have the letters “HQ” vice the small + sign so players can more easily pot them for C2 purposes. Infantry HQs retain the number designation. A C2 tutorial is provided in this manual to help clarify this sometimes confusing feature.

- In Internet play the player number owning a unit appears at the 11 o’clock position relative to the unit. Players are numbered 1 through 6 in small yellow numbers.

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- When a player feels his situation is hopeless he can surrender by using the F9 key. If the opponent accepts, the game will then be scored as though it ended that turn. Some may view it more a cease fire than a surrender as victory hexes remain in the hands of the current owner, but abandoned vehicles of the player with the fewer victory hexes will be counted destroyed for the opponent.

- When Vehicle moves in dry weather in desert scenarios they now leave a dust trail.

- Help screens have been added to the game. They can be brought up by the "Help" button or by using hot keys. The Terrain Effects charts are brought up with the "I" key.

- Preferences can be selected on the opening screen.

- Two new battle types have been added to Desert, Summer and Winter. The new ones are Jungle and Rough. Jungle is for Pacific Theater battles and Rough is used for Balkans and Italy battle locations.

- A new system of experience and morale for purchasing units has been created in the OOB's. Players and designers will be given a choice of troop types::

  a. 0 = Normal troops-
  b. 1 = Recon troops
  c. 2 = Dedicated artillery

  d. 10 = Elite troops +10 experience/morale
  e. 11 = Elite Recon troops
  f. 12 = Elite Dedicated artillery

  g. 20 = Second line troops – 10 experience/morale
  h. 21 = Second line Recon troops
  i. 22 = Second line Dedicated artillery

  When selecting units for purchase, the type of unit, elite, normal or 2nd line, will be shown at the top of the unit OOB description box underneath the unit description and unit points. The Historic ratings feature does not affect this.

- Computer opponent has been reprogrammed to use reserve forces more aggressively. Also, it should now commit these reserves earlier than it did in previous versions of the game.

- Fortifications are now treated as armored targets for bombardment purposes. This means they will receive the benefit of armor ratings and will no longer take casualties from rounds that do not hit the fortification.

- Units that are abandoned or destroyed before the battle starts no longer count as killed at the end of the battle. This includes destroyed units placed by scenario designers and campaign forces that were destroyed and not repaired before the next battle..

- Daytime battles and night battles can be displayed differently. In daytime battles a unit's movement radius can be seen as dark hexes against the light map. Night battles reverse this. The "Move Radius" button in Preferences toggles this feature on or off. The F8 key is the hot key for this.

- Pressing the F7 key can check a unit's vision. This allows the player to see what is visible

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for the unit.

Preferences Screen

Below is an explanation of the preferences buttons. For convenience sake, all buttons are listed, even though not all have been changed.

- ***Soundtrack*** – "On" means players will hear music on all screens, except in the combat screen, where instead they will hear the weather and battle sound tracks if they are also turned on. "Off" means no music will be played.

- ***Weather and Battle FX*** – "On" means the weather sound track will be played in the combat screen, as long as the "Soundtrack" button also is on. After combat ensues, a second sound track will play random battle noises.

- ***Unit Sound FX*** – Enables unit movement and gunfire sounds.

- ***Terrain Sound FX*** – "On" means that when the mouse is moved over some hexes, a sound will be played. The only sounds currently available are for burning vehicles and water. Future updates may add sounds for railroads, buildings and others.

- ***Hex Grid*** – Controls the hex grid overlaying the map.

- ***Objective Hexes*** – "On" means that little flags appear in victory hexes. These can be turned off if players want to see the underlying terrain in the hex.

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- ***Fast Artillery*** – Vastly speeds up the artillery bombardment animations. This is recommended to speed up play. Artillery does not show up on the VCR replay at all when Fast Artillery is on.

- ***Hex Info*** – "On" means that as the mouse is moved around the map, terrain and unit data appear in a small pop-out box.

- ***Floating Map Text*** – "On" means that the pop-up boxes, enabled by the "Hex Info" button, will appear wherever the mouse hovers over the screen. "Off" means that these boxes will appear at the top of the screen. Note that boxes displaying combat results never float.

- ***Live Delay*** – This value determines how long the mouse must be left over a unit or hex, before the Hex Info box is displayed.

- ***Unit Number*** – This button has four settings. "Off" means no numbers appear on top of the units. "Your Infantry" will display the number of men remaining in infantry units. "Your Units" will display numbers for infantry and place a small "+" sign over vehicles. "+" signs will glow orange for all the units in a formation when any of the formation's units are selected. This enables formations to be kept together for command purposes. "All Units" displays unit numbers on enemy infantry, and cannot be modified once a PBEM game or online game starts.
-
- ***Time per Turn*** –This setting determines how much time a player is given to make his move, before his turn ends and the other player moves in "Online" and "Timed play" modes.

- ***Move Radius*** – This button is a 3-way toggle. "A" means that all the hexes that the currently selected unit can reach will be highlighted. "B" shows darkened hexes in daytime and highlighted hexes during nighttime "Off' turns the feature off. Note that with the Command and Control on, a unit will not have a movement radius highlighted if its formation has not been assigned an objective. With Command and Control on, non-recon units are restricted to moving in the general direction of their objective unless command points are spend to direct them to do otherwise (see Command and Control below)

- ***Unit Icon*** – This value determines the size of the unit icon that appears on the screen. There are four values, with setting 1 displaying the smallest icons and setting XXX the largest.

- ***True Troop Cost*** - A new button, the "True Troop Cost" button can now be found on the Preferences Screen. When on, this button will cause troop costs to be generated, using the unit's experience as a factor. Before now, this only occurred when "Country Training" option was off. The option is useful if two players want an even battle with balanced points. This option replaces the old "Hide Fort" option, which is now considered to always be off.

- ***Movement Delay*** – This value determines how long a pause occurs between frames of animation in movement. This means that a high value will cause units to appear to move slowly from hex to hex, while a low value sends them zipping along the map. If you prefer the brief delays that were common in Steel Panthers I or II, then reduce this value. XXX is the fastest speed possible, limited only by your CPU speed and graphics card capability.

- ***Message Delay*** – This value determines how long messages, such as combat results,

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remain on the screen. An XXX setting will display no messages at all. This speeds up the game, but you won't be notified of the damage you inflict and receive. Note that the VCR replay uses the selection you chose. If you turn messages off, your opponent will not see them at either, and if you set a long time delay, your opponent will be spending a lot of time watching messages.

- ***Limited Ammo/Reduced Ammo*** Limited Ammo On - The unit receives the ammunition listed in the purchase screen and the ammunition is reduced when the unit fires.
  Reduced Ammo On - The unit receives 50% to 99% of the ammunition listed in the purchase and the ammunition is reduced when the unit fires.
  Limited Ammo Off - The unit receives the ammunition listed in the purchase screen and the ammunition is NOT reduced when the unit fires.

- ***Characteristics–*** This is to turn on or off the National characteristics of the different countries, such as Italians retreating quickly or Soviets defending fanatically. Artillery and aircraft are unaffected by this setting.

- ***Unit Comm*** – The unit communications button controls whether units suffer from command control paralysis if they are too far from their headquarters. "On" means that if a unit is farther than 3 hexes from the headquarters unit of the formation, it must have a radio and make a radio experience check to be in communication. "Off" means that all units are always in full communication with all other units.

- ***Command Control*** – Enables the SP: WAW command control system. "On" means that headquarters units generate command points (orders) and must expend them to change the formation objective, change a unit stance, call in artillery strikes or move away from the formation objective. "Off" means that units do not generate or need orders. Note that even if command control is enabled, some headquarters and recon units do not have to expend orders to move away from the formation objective (See Command and Control below).

- ***Morale*** – "On means that normal rules for morale are in effect with units suffering a readiness penalty from reduced morale. "Off" means that units do not check morale or suffer a readiness penalty. They stay in good order until destroyed.

- ***Move and Fire*** – "Off" means that units are not assessed penalties for moving and shooting. If "On," units lose movement points for shooting depending on their abilities.

- ***Mines*** – "Off" means mines are ignored and are harmless. However, even if harmless, mines still will appear on the map, and units will tend to avoid them.

- ***Historic Ratings*** – "On" means that when units are generated, their experience levels are created using historically derived tables (so that German paratroopers will tend to have to have higher experience ratings than the poor old Italian infantry). "Off" means that the player may manually set the experience level using the Troop Quality setting.

- ***Limited Intel*** – Enabling this setting will make enemy units harder to spot as well as make them less likely to remain spotted. The number of men in an enemy squad will not be displayed. A recon unit that spots an enemy artillery unit and moves away, for example, will find that the enemy battery may become hidden again depending on the cover it is in. This may happen immediately or after a few turns. Infantry and support weapons that are seen moving may also disappear in a few turns after they stop moving. Perhaps most important, units will not be automatically spotted if they fire, which makes snipers and pillboxes particularly effective. The chances of spotting, and of spotted units disappearing, depend on the relative experience levels of the units involved, their skill of

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their leaders, the weather, the visibility and the terrain. Please note that infantry and other leg type units are much harder to spot in general than they were in Steel Panthers III, especially at ranges greater than 10 hexes. Occasionally, units that leave LOS remain spotted for a turn. This typically happens when units crest a hill and then go back into defilade (behind the crest).

- ***Searching*** – This value is a multiple in the spotting calculations, with 100% being 1.0. Increasing this number will boost the range at which you tend to spot an opposing unit. Lowering it will reduce the chances, and lower the range at which units will be spotted.

- ***Hitting*** – This value is a multiple in the to hit calculations, with 100% being 1.0. Higher values equal more hits. This affects all direct fire attacks. Note that experience and suppression also play big roles in determining hit chances.

- ***Rout/Rally*** – This value is a multiple in the rally calculations, with 100% being 1.0. Higher values increase the chance of units rallying and increase the threshold at which they degrade to pinned, retreated or routed status.

- ***Troop Quality*** – This value is the base experience, when units are being created. A XXX setting will use historical values. The lowest value is 30 and represents the freshest of conscripts. At the high end, values above 110 or 120 are not recommended unless “Hollywood heroism” is desired for that side. Historic Ratings must be off for this to function.

- ***Tank Toughness*** – Base vehicle armor values are multiplied by this value before adjusting for slope or aspect, with 100% being 1.0. Increasing this value creates tougher tanks.

- ***Infantry Toughness*** – Infantry casualties are divided by this value, with 100% being 1.0. Really boost this value, and you can have whole companies of Rambos.

- ***Artillery Vs Hard Targets*** – The chance of an artillery shot hitting a vehicle is increased or decreased by the selected percentage.

- ***Artillery Vs Soft Targets*** – The chance of an artillery round killing infantry is increased or decreased by this amount. Note that this adjustment affects damage to the occupants of a fort (who are considered injured by concussion or flying debris), while the hard target setting affects how likely it is the fort will be actually hit.

- ***Battle Points*** – If this value is XXX, Random values are used. If not, the player can manually set the base number of points that each side may spend to purchase units. The higher the value, the more units that the player – and the computer opponent – can purchase.

- ***Air Sections*** – If this value is XXX, historical values are used. If, the player can manually set the maximum number of air section each side can have in a battle.

- ***Max Formations*** – This allows the player to limit the number of formations each side can have in a battle. The game supports 600 formations between both players, so setting one to a number and the other to XXX will limit one side and allow the other whatever remains.

- ***Victory Frontage*** – If "Victory Frontage" is on, the random map generator creates five victory objective locations instead of three.

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- ***Computer Advantage*** – If "Computer Advantage" is on, the computer opponent will receive some free units, to make the game more challenging. In small battles, this can unbalance the game.

- ***Op Fire Confirm -*** Players can now decide if they want to take advantage of Opportunity Fire when it is triggered and how long they have to decide. Whenever your unit has an option to Op Fire you will be shown what unit and weapon you will be firing and the target unit. You now press (y)es or (n)o or hit the space bar or left click with the mouse to fire. Before you start a battle you can set how many seconds the display is shown before the Op Fire is cancelled. Op Fire can be used in all game play except PBEM. If you do not want to use the feature it can also be turned off by setting to "0". If a unit is given a Special Op Fire it will now state that it is Special Op Fire on the screen. Both Op Fire options will show you your unit firing, type of weapon be fired, the range from your unit to the target and the target unit.

- ***Time Out -*** During an Online game the gamers can decide how many "Time Outs" each side is to get. During your turn you may choose to use a Time Out. This will pause the game and stop your clock from running. Time Out time is decided by doubling your current setting on the turn timer. Hitting the "pause" key without using a timeout (to get some refreshment, or take the effects of previous refreshment, etc) requires the opponant to confirm.

- ***Command Intervention -*** During an Online game gamers can set how many "Command Intervention" points are giving per player. Because each turn time is set before the game starts this option will allow you double whatever time you have left at the time you press the Command Intervention hot key. So if you have 2 minutes left pressing the Command Intervention hot key would give you 4 minutes. This will allow you in the critical parts of the battle to extend your time when you really need it. But decide to use it early as doubling 15 secs to 30 is usually not worth it!

- ***Vehicle Reliability*** – Vehicles that travel at high speeds or over rough terrain have a chance of that unit breaking down.

- ***Weapon Reliability*** – Unit weapons may breakdown when being used. If a player uses a lot of Op Fire this can increase the chance of their weapons breaking down. Some weapons can be repaired during the game. All breakdowns are also affected by a country equipment modifier that can increase or decrease the chance of breakdown. A Unit's experience can also improve repair time of a damaged weapon.

- ***Reduced Squads*** – If on, this simulates men on leave, runner duty, previous casualties and so forth. The effect is some of the men are not present for the battle. The number of men missing depends on the number in a full unit and may run up to one third the maximum men. This setting has no effect on predesigned scenarios or campaigns

- ***Historic Ratings -*** This sets the different countries morale and experience levels to their approximate historical levels based on the year..

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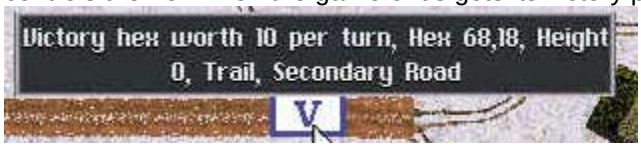
Changes to Game Play

Although SPWAW is based on the Steel Panthers game system, many if not most of the game system has been completely rewritten. Here's a basic list of the changes:

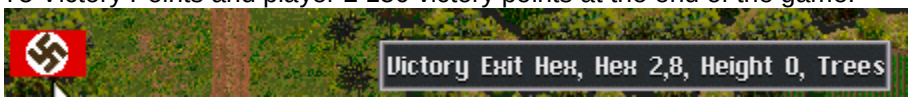
New Victory Conditions

Players will now have five victory hex types, four of them are new. There is also an option to make any type "hidden" until discovered, or a specific turn is reached. Players should note that the AI will not go after any victory hex that is 19 points or less in value. Players can mix more than one victory type in a scenario. Only one victory type can be in a hex. Players can also now offer to surrender. If accepted by the opponent, the game is scored as if the game ended that turn. Victory hexes remain in the possession of their current owner.

End of Game Victory - This is the standard victory option currently in the game. The player that controls the hex when the game ends gets its victory points.



Control Victory: When using this option the player receives victory points for the turns the player controls the victory hex. If the Control Victory hex is set at 25 points per turn and player 1 held the Control Victory hex for 3 turns and player 2 for 5 turns of an 8 turn game then player 1 would get 75 Victory Points and player 2 150 victory points at the end of the game.



Exit Victory - When using this option the player will receive victory points for each of the units that is able to exit off of the map. If there are any Exit Victory hexes in a scenario, the other side gets ½ the escaping side's starting force value as victory points immediately. Units exited through the Exit Victory hexes now score 3x their (and their passengers') value as victory points.

Strategic Victory - When using this option the player will have Strategic Victory hexes. Strategic Victory hexes have a set victory point value and once captured can not be recaptured during the game. These make perfect types of victory hexes that have things like a HQ tent on them

Reactive Victory - When using this option the scenario designer can place a Reactive Victory

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hex on the map and it will be set at 19 victory points by default. The victory hex will not be visible to the human player at all and the AI will ignore it since it is less than 20 victory points. When the human player moves over the Reactive Victory hex +5 is added to the victory level. This will now make the victory hex worth 24 points and now the AI will attempt to go after it. This is a great way to get the AI to react to human players and spice up a scenario. None of the victory points assign to these hexes are counted at the end of the game.

Hidden Option: When using this option the scenario designer can place any of the Victory type hexes listed above and start them unseen and inactive at the beginning of a scenario. Neither the AI or a human player will know the turn its to become active. Once the turn that has been set begins the victory hex is shown on the map and as long as the value is higher then 19 the AI will attempt to capture these new victory hexes as well.

Reinforcement Request

Players can now purchase reinforcements based on 20% of the points spent to make up their initial force. These reinforcements will show up 1-4 turns later on one of the reinforcement hex #1.

This reinforcement hex is now started on a road hex on the player's side of the map if possible. If you use this option during Online play you must have a Time Out still available. 25% of the victory point's award for destroying your reinforcement pool is automatically added to your opponent's victory points.

A player can request reinforcements every turn as long the player has not spent total of 20% in points over the initial force and when playing Online play also have a time out available. Reinforcements Requests can only be made if you have Timeouts available.

Movement

- Units being loaded into a vehicle must now be in the same hex with the transport.
- Vehicles may now only tow one gun at a time. Landing craft and ships may still carry multiple guns.
- Machine guns, mortars, anti-tank guns, flak guns, howitzers, rockets launchers, infantry guns, light mortars, heavy machine guns and heavy mortars may not fire their primary weapon on the turn they unload from a vehicle or move.
- Units controlled by the computer that are within the line of sight of a human-controlled unit now are visible and make movement sounds if they move during the computer's turn.
- Computer controlled vehicles should no longer plow through every building they come across. The path finding code has been rewritten. They will now avoid entering buildings, unless the building has a victory objective.
- Remember that movement rates in SPWAW are subject to "combat friction." If you are spotted by an enemy you will see an * symbol and lose movement points. If fired upon, you will see a "#" and lose even more points. This can cause units to fail to reach hexes that the move radius showed reachable at the start of the turn. Occasionally units may be able to move an additional hex. Movement points can be a bit uncertain, so plan accordingly and be careful if your plans revolve around taking a specific hex with a unit

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that just barely thinks it can reach it.

- Wooden bridges will e block all vehicle traffic if a wreck or any unit is on a span which covers a water, stream, gully or trench hex. Stone bridges will block all vehicle traffic if a wreck and a unit or two units are on a span that covers a water, stream, gully or trench hex. Stone bridges cannot be blocked by 2 or more wrecks because the game does not track how many wrecks are in a hex. Units on a bridge do not block leg type units. Nor are boats and barges. All leg and vehicle units that traverse a bridge hex with any units or wrecks present, but not enough to block movement, pay an extra cost.

- Pressing the F7 key can quickly check the radius of a unit's movement.

Weather

- A new weather system has been added. Units have less chance of sighting and move more slowly due to fog, haze, rain, snow and dust storms. Units traveling on paved roads, in the rain, suffer less of a movement penalty than before. Weather will vary with battle location, time of year and in some cases time of day.

- The current battlefield conditions are displayed when the mouse is pointed on the upper right corner of the combat screen. Appropriate sound effects for the weather are played if that option is enabled in the Preferences Menu. The same applies to the background battle noises soundtrack, which begins randomly between turn one and four, or when the first weapon is fired.

- A help key (F1) with weather info can be invoked from the battle setup and editor screens.

Spotting

- The spotting system has been modified. Spotting ability has been reduced for turreted vehicles, and slashed even more for non-turreted vehicles such as trucks. Note that snipers are now very, very hard to spot.

General Combat

- All sighting, hit probabilities and damage routines have been rewritten. These have been adjusted in the various patches based on user suggestions. We have tried through the preferences to make the game customizable to virtually any taste. Don't be afraid to experiment with them.

- Players can now decide if they want to selectively use Opportunity Fire. Whenever your unit has an option to Op Fire you will be shown what unit and weapon you will be firing

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and the target unit. You now press (y)es to fire, right click or press the spacebar or (n)o to pass up the chance if the time runs out the default is to not fire. Before you start a battle you can set how many seconds the display is shown before the Op Fire is cancel. Op Fire can be used in all game play except PBEM. If you do not want to use the feature it can also be turned off in Preferences. If a unit is given a Special Op Fire it will now state that it is Special Op Fire in the info/chat area. Both Op Fire options will show you your unit firing, type of weapon be fired, the range from your unit to the target and the target unit.

- The AI routines have been enhanced. The computer will never be as wily or unpredictable as a human opponent, but it will use somewhat more sensible tactics than in previous Steel Panthers versions. It is still limited, so it tends to rely on speed and numbers to overwhelm. It will use the flanks and sometimes it will keep a reserve, so watch out. The new “AI atrractor” hidden victory hexes add a new degree of designer control over how the AI reacts to player movement.

- Units that shoot will lose movement points similar to the way that moving units lose shots.

- Units that fire and move will lose target acquisition. Without target acquisition, fire suffers a 40 percent penalty on the first shot and 20 percent on the second. Range finders will help mitigate this.

- Units may no longer be set to auto-fire (automatically firing all their available shots), because playtesting has shown this feature unbalances play by allowing one side all its shots before the target can fire back with opportunity fire.

- Terrain cover has been expanded. Streams and canals now offer cover for all units as do trenches and gullies. In addition, wrecks and holes now offer cover for leg units.

- The game will no longer randomly add extra turns to the length of the game, making scenario design more predictable.

- The computer purchase advantage can now be toggled. If this is turned off, the AI will get some free units. Note that this can unbalance small scenarios.

- The Preference menu allows units to either start with full loads of ammunition, or up to 50 percent less.

- Heavy guns and bombs will now affect units up to 2 hexes away with suppression, and may kill men in adjacent hexes. Collateral damage to units in a hex hit by bombardment is now linked more to experience.

- If a unit has fired all of its shots during opportunity fire and an enemy unit moves close to it or fires at it, the unit may now, with a special experience check, gain extra shots. This will prevent players from trying to use up all the opportunity fire for a unit and then charge up to it and fire. Since this requires a special experience check, it is never certain how many opportunity fire shots the defending unit will have.

- Units in the hex with a target now receive a special experience check against collateral damage from small arms and machine guns. This gives a squad a better chance to get behind or away from the tank or away from the other squad, as needed, if the other unit is being fired at. Experienced units in the same hex with a tank can no longer be engaged effectively by shooting at the tank. This may still work against lower quality troops that tend to bunch up near armored vehicles

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- Experience plays a larger role in general. The number of men firing "primary infantry" class weapons is determined by an experience check. The total number of men killed is now adjusted by experience checks.

- Anti-tank mines and Molotov cocktails, satchel charges and flame throwers may now be used against units in adjacent hexes, by selecting the target and then using the “c” key to choose that specific weapon. Anti-tank mines and Molotov cocktails still may not be used against non-vehicular units.

- Some players felt that abandoned vehicles and guns should generate victory points. Now, any units abandoned are considered destroyed,for victory point purposes, if that side does not control the battlefield. Control of the battlefield goes to the side with the most victory objective points. Abandoned vehicles can be destroyed by moving a unit into the same hex and remaining for the full turn. If the unit passes an experience check, they will destroy the abandoned unit at the end of the turn. The unit and leader spiking will receive experience for the kill, although the leader will not receive a kill credit.

- When selecting and firing at a target using the “Target” (“t”)button, the targeting window now closes before the shot takes place. The same occurs with the "Target Indirect Fire" (“z”) and the "Fire Smoke with Direct Fire" (“x”) button.

- Units firing at other units in the same hex were automatically facing to the right of the screen, which sometimes made the rear of the unit face the enemy force, even when the enemy was firing from the left. They will now retain the facing they had before they fired.

- Vehicles and guns that have been abandoned no longer have the "+" drawn on them. This should make it easier to see, at a glance, if the unit is active. Enemy units that are retreated or routed are no longer highlighted with their number or "+" either.

- The mouse cursor now becomes an hourglass while the human players unit is moving and during bombardments, so he will know he cannot choose another unit.

- Holding down the "." (period) key should now cause the VCR replay to abort, in midstream. Note that you should hold the key down until the current packet has been displayed, at which time the game will stop the VCR and resume play.

Smoke

- Smoke is now a hindrance to spotting and not a protective “shield.” Heavy smoke screens over 2-3 hexes will block line-of-sight, but the more common effect of smoke is to make it more difficult for the enemy to spot you in the first place. “Popping smoke” and remaining where you are already spotted will not be as effective as using it before movement to screen your withdrawal.

- The smoke allowance for howitzers, artillery, mortars and heavy mortars has been increased. Light mortars receive no smoke.

- Smoke will drift downwind, creating several partial smoke hexes after a couple of turns. Sighting through several of these partial smoke hexes will be obscured.

- Infantry can now only throw smoke one hex away.

- Fires may now spread to adjacent flammable hexes. They will generally spread downwind. The wind may shift, changing the direction of smoke and the primary direction

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of spreading fire. Fires may burn out after a while. Fires and the associated smoke will cause suppression to any units in the hex, including vehicles. The weather is now a major factor in how long a fire burns and how rapidly it spreads.

Armor

- Players may order crews to voluntarily bail out (to save an experienced crew in a bad situation) by pressing the "9" key. This works for crewed guns as well. The "secondary weapon" of most guns have been removed. The crew must "bail" from manning the gun if they want to engage close threats with their crew weapons.

- Crews now check morale when serious damage is done to their vehicle, or if they think their vehicle has been badly damaged. If they fail, they bail out immediately. Note that this means a crew will occasionally bail out of a perfectly good vehicle! Bailed-out vehicle crews, or gun crews who abandon their artillery pieces, may rejoin them once their morale improves.

- At the end of the game, abandoned vehicles belonging to the side that controls fewer objective hexes will be treated as destroyed for the victory point tally.

- Infantry small arms fire will now inflict much less suppression on armored vehicles. However, concentrated small arms fire can still affect a vehicle crew's morale.

- Calculations have been altered to allow smaller caliber guns to do more internal damage against lightly armored vehicles. Kill chances per shot in general have been somewhat increased.

- Low T/D (thickness of armor/diameter of shell) resolution has been enhanced, T/D ratios as low as 1/6 have more appropriate effects, greatly reducing the chances that medium and heavy AT guns will richochet off lightly armored vehicles. It can still happen, there are many places where structural componnats can affect a near paralel shot, but in the low cases chances have been reduced from 8-12 to 3-5% over normal ranges of obliquity.

Infantry

Infantry moving only a single hex are much less vulnerable to fire. Units moving in the open are very vulnerable to the initial shot, but if experienced, will "hit the deck" quickly. Very experienced troops can sometimes "anticipate" a shot and hit the deck before it strikes.

Suppression has been reworked to increase more quickly, but decrease more quickly. "Bonus" suppression removal over and above normal leader rally based on proximity to friendly units (especially the special HQ units) and whether they're hidden.

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- A leader's Rally rating now is more significant, particularly for platoon and company commanders. Scenario designers should pay close attention to this characteristic, as a formation's ability to advance under fire will be closely related to this attribute.

- Infantry may now only throw smoke grenades one hex.

- Machine guns are now more lethal, particularly to men moving more than 1 hex

- The minimum chance for close assault of hard targets has been increased from a base of 2%, to a formula that uses the number of men assaulting. So, for example, a 10-man squad has a base 10% chance. The effects of experience on infantry combat have been enhanced. Experience more directly affects the men killed in a target unit.

- Small arms now cause more suppression, but fewer casualties. This makes infantry tend to retreat more often when fired upon.

Artillery

- Indirect fire delays have been changed . Players that want their artillery to arrive quickly will need Forward Observers who can call in fast-response artillery or need to set up pre-registered targets. This affects off-board artillery more than onboard artillery, which is assumed to be directly attached to the unit and is more responsive. Players will still find their batteries are out of contact about 25-33% of the time. Note that Light Mortar class units are linked exclusively to their platoon commander, who is the sole spotter that can be used to call their fire. The platoon CO must be with in 3 hexes to have a comms link in this case as such mortars don't have radios.

- Onboard artillery units that are hit will not only lose men, but ammo as well.

- Artillery units as well as a few others receive double allocations of smoke.

- All light mortars are coded as dedicated artillery, which means they can be used for indirect fire. However, when attached to a platoon, only the platoon headquarters can call for and adjust their fire.

- Off-board artillery and rockets now always start with full ammunition, even if the "full

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ammo" option is not chosen.

- Terrain will crater more rapidly than before. **Note:** There is a limit on how many craters can be put on a map (it is large!) but some scenario designers have reached it.

- Direct or indirect fire from large caliber ordinance will now create breaches in stone walls and hedges. Rounds of at least about 105mm are needed and the breach may require several shots.

- Rounds are assumed to land in a more spread-out fashion in a hex. This means units in hexes adjacent to impact hexes can now take suppression or even casualties from large caliber ordinance.

- Suppression code was rewritten, so that high explosive bombardment via direct fire causes much more suppression against infantry and armor, while indirect fire has more effect in the target hex and adjacent hexes. Artillery will now suppress units over the entire "beaten zone," not just the specific hexes impacted. Entrenched units will tend to recover faster, however, so they must be engaged quickly after the barrage is lifted.

- The balance between the effects of direct and indirect fire have been adjusted. Direct fire is still more likely to cause casualties than indirect fire, and indirect fire will cause more suppression. The effect is wider for units in cover and wider still if entrenched. Direct fire will cause random suppression related to its warhead size, rather than a set amount, sometimes the result is 0, indicating the round "missed" completely. Indirect fire generally does about twice as much suppression over a much wider area, but has a greatly reduced chance to kill. An analysis per round" of casualties will show heavy caliber rounds not killing as many troops as one might expect. We have done this deliberately because the game player has much finer control (and typically more common availability) of these assets than their wartime counterparts, and we feel this "scaling" of effect keeps the relationship between combat arms correct over the course of a game.

- Vehicles are now hit more often than before by bombardment. This can be changed by changing the new Artillery vs. Hard Target preference. They also take suppression from rounds that land nearby.

- Some players felt off board artillery was out of command too much. It has been made easier to contact and stay in contact. Players will still find their batteries are out of contact about 25-33% of the time. Communications and commitment of assets was not always foolproof. Commanders influence was often used to redirect assets that had been "earmarked" for other units. If you lose contact in the middle of a barrage, you can often succesfully shift the fire despite losing contact and keep the shells falling in the general vicinity. This assumes a case where you lose contact, but the battery takes it upon itself to continue the miossion anyway, it just isn't sure exactly the position, so the play is forced to shift it a bit. This provides a mechanism to continue a barrage in progress, when communications are spotty.

- The frequency of counterbattery fire has been adjusted.

- Artillery with smaller warheads now make smaller explosion sounds.
- The artillery barrage message delay has been reduced to one half the message delay set in the Preferences. This should speed up artillery barrages. Also, remember that if you hold down the "F" key during the barrage for a bit, the fast artillery option will turn on.

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Fortifications and Enhanced Defenses

- Entrenched units now have enhanced sighting and opportunity fire capabilities.

- Units in Defend stance are about 33% more likely to receive “Special Opfire” when they have expended all their shots. The triggers for “Special Opfire” are moving within 2 hexes of the unit, shooting at the unit, and expending a great deal of time in the LOS of the unit. (i.e. running straight at it in clear LOS).

  The “Dug-in” entrenchment state has been renamed “in cover,” to better describe the state achieved by units in “defend” stance that deploy to best defensive advantage in a hex. View the “defend” stance as the order to look in the hex for the best defensive positions and fields of fire. It may take a couple turns to successfully complete, as an experience check is required to accomplish attaining “in-cover status. In Delay or Defend scenarios, engineers will speed this process.

- Morale for fortifications units has been increased. Units that are in cover or entrenched now have a greater chance of success when close assaulting vehicles.

- Leg engineers may now place mines during the battle.

- HQ "tents" (renamed “Command Posts”) now help stiffen defenses by bonus suppression removal.

Special Weapons

- Flame-thrower range has been extended to a maximum of two hexes for vehicle types.

- Leg engineering units may now remove obstacles such as dragon’s teeth. The procedure is similar to removing mines. If mines and obstacles are both present in the target hex, the mines will be removed first, for safety reasons.

- Leg engineering units, or any one with a satchel charge, may now blow a breach through hedges and stone walls. The procedure is the same as blowing a bridge. Move adjacent to the wall or hedge and attack the hex using the “z” direct fire key. Please note that when blowing a bridge, the engineering unit should move off the bridge first.

Air Power

- Fighters and bombers can no longer effectively spot enemy units, so air power is no longer a miracle recon asset.

- The blast power of even small bombs, and the disruption an air attack has on nearby troops, had been greatly enhanced.

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Campaigns

We completely revised the User Generated Campaigns. Players can now have over 1,000 campaigns. The new campaigns can branch to different scenarios depending on what the out come of the battle. The condition you start your next battle will now greatly depend on how you ended your last one. Designers can now determine final victory by points or victory hexes and even exiting units off the map board. Designers can write their own campaign texts for each battle land scenario results and associate sound files with each new battle start. In addition to support points available at the start of a battle, the number of points of reinforcements that can be called for during the battle can be set by the campaign designer.

In campaign generator and the long WW II campaign, some users wanted to be able to set the points before starting the campaign, instead of using the points generated by the campaign code. Either campaign will now use the default calculated starting points unless the player has changed the starting Battle Points value in the preferences to a value other than "XXXX" for Player 1. If he has set this value, the game will use this value.

In campaigns, the number of turns for a battle was randomly determined each time the battle was loaded. It is now determined when the battle is generated and saved with the game.

Some players felt units should be exchangeable for units not of the same type, such as replacing armor for infantry, while in a campaign. A unit now can be exchanged for any type of unit. This exchange is, however, a hardware exchange. The officer and men remain the same, with the same skills and experience, minus the experience penalty generated by the exchange.

Some players wanted to be able to continue the long WW II campaign after a defeat. They now can. A defeat generates no victory points, however.

Beach assaults are now generated in the long WW II campaign. The US Army, British Army and early war Japanese Army will occasionally be assigned beach assaults. The U.S.M.C. will receive them fairly regularly. In campaigns, beach landing can now occur in places like Luzon, Salerno and Omaha Beach.

The map size in campaign generator and long WW II campaign battles is now randomly chosen and will range from 40 to 80 hexes high.

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Changes to the Armor Combat System

Armor Penetration

This is perhaps the most significant – and the most complex – change from previous versions of Steel Panthers. Instead of using abstract armor ratings, penetration is now calculated on the basis of the actual millimeters that a round can potentially penetrate, as well as the degree to which the target's armor is sloped. This allows for a more realistic effective armor calculation to be made, one that accounts for the combined effect of vertical and horizontal armor angles, and the ratio of basic armor thickness to shell diameter (expressed by the formula "T divided by D").

The new system also includes an increasing chance of ricochet with increasing compound angles and T/D (thickness of armor/diameter of shell), so small rounds at glancing angles bounce very often while large rounds that hit at slight angles from the perpendicular do not. In other words, the flatter and more direct the trajectory the less chance there is of a ricochet. The T/D effects have been enhanced, improving the portrayal of low T/D situations that arise when medium and heavy AT round impact lightly armored vehicles. The chances of ricochet have been greatly reduced in such circumstances (from the order of 8-12% to 3-5 %, though 15-20 % can still be had at VERY steep angles >75 degrees). 88s should not ricochet off half-tracks very often – but there is always that small chance of interacting with structural members or other things that can cause a strange occurrence.

Remember that vehicles may be in motion and not in the exact center of a map hex, so SP: WAW determines the horizontal and vertical angle between the firing unit and target at the moment the shot is taken. This technique, together with a small (less than 10 percent) variation in penetration power from shot to shot, attempts to get away from widely variable combat results that confused players of the older SP games.

Ammunition Effectiveness

HE is now tested against the basic armor thickness of hard targets, HEAT ammo against the "geometric thickness," and AP and HVAP are tested against a T/D-dependant "ballistic thickness" to determine the chance of penetration. The combat results pop-up box now displays the penetration of the round and the effective armor of the target at the location where the round hit.

Note that because of the geometry involved, the effective thickness of a targets armor can be multiplied – in extreme cases, by 10 or 15 times! These "extreme angle" shots are usually ricochets, but there is always a small chance that shells will "bite" and a small chance they will

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bounce or shatter on impact. While it may seem incongruous to see and 88mmshell occasionally ricochet off a thinly armored half-track, such things will only occur when the angle involved is so shallow that the round has effectively missed. Such things happen far less often than in previous versions of the game, but SPWAW ensures that Mr. Murphy's law is never entirely absent from the scene.

Armored Skirts

Armored skirts are now handled differently. They add to the base armor after slope has been calculated. The amount they add ranges from 100 percent to 300 percent of the skirt thickness, depending on the type of ammunition striking it. In addition, although the display screen for engineering tanks displays only their inherent armor, the effects of the rollers, blades and other external accessories are factored into the penetration model.

Vehicle Damage

The combat system tracks the locations where penetrating hits can occur, such as the gun and tracks. When penetration occurs, each system is checked for damage. The calculations consider the type and size of the penetrating round, the location of the hit, the kinetic force left in the round after it has traveled to the target, the amount of armor thrown inward during the penetration and other factors. It is possible for the round to go all the way through the target and not damage any systems of the (lucky) vehicle.

The least amount of damage should occur when a small caliber APCR projectile barely penetrates a very large vehicle with thin armor, a small crew and a large "survival" characteristic. Damage that penetrating rounds do may be revealed to the firing player or not, depending on if the firing unit is in a position to see the effects.

Non-penetrating critical hits have been added. Vulnerable systems include the toolbox, radio mast, main-gun, coaxial-gun, main gun optics, range finder, infrared sensors and turret ring. Vehicles also are susceptible to general crew shock from very large non-penetrating hits. Hitting these locations should be difficult, with HE ammunition generally having a better chance. In fact, the greatest chance of damage should occur when a large HE projectile hits the turret of an AFV with many external systems. The round may not punch a hole in the armor, but there will be one tank in less than mint condition.

Trucks are now treated like other vehicles, and may now be immobilized and have their suspension and other systems damaged.

Vehicles can be hit on the belly (which is weakly armored – assumed ¼ the side value and at 0 slope) if a special experience check is made by the firing unit and the range is less than 3, the hit is in on the front of the target, and the ground level of the target is 5 meters higher than that of the firing unit. This prevents reverse slope firing positions from being impervious, and solves inherent problems in the line-of-sight and angular armor thickness computations.

National Characteristics

The forces of the major combatants now had unique characteristics that add to the historical flavor of the game. American troops tend to retreat more rapidly than the other major powers, but also rally more quickly. British troops, known for their steadiness under fire, receive less of a penalty from suppression when under fire from small arms. German troops benefit from outstanding training by receiving less suppression from fire until the last year of the war, when their training historically dropped off.

Japanese troops and US Marines almost never surrender and Japanese troops seldom retreat.

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Marines can dish out firepower at close range. Expect very bloody, desperate close combat between these two. Poorly equipped and lead, Italians will sometimes surrender, even if not surrounded, throughout the desert war. The Soviet army, known for tenacious defense, will sometimes spontaneously recover and ignore current suppression levels if their current mission is defend or delay, and they're heavy fire but under adequate cover. Players can remove these characteristics by turning them off in the Preference screen

USA - Troops tend to retreat more quickly than other major nations. They also receive a bonus to rally.
USMC - Troops receive a +10% bonus to hit, when firing rifles. They very seldom surrender. They also receive reduced ammunition and their ammunition trucks reload more slowly.
British - Troops receive less of a penalty from suppression. They also receive a small penalty to rally.
Canadian - Troops receive less of a penalty from suppression, when firing. They also have a higher breakdown rate, when using British vehicles before 1943, than do the British.
ANZAC - Troops receive less of a penalty from suppression, when firing. They also have a higher breakdown rate, when using weapons vehicles before 1943, than do the British.
France - Troops receive more ammunition and their ammunition trucks reload faster until 1943. They also suffer a greater chance to be out of contact by radio.
Soviets - Until 1944, when on the defense in good terrain, during a delay or defend mission, if they take enough suppression to retreat or route away, they will, if they fail a morale special check, become tenacious defenders and all suppression will be removed. They also suffer a substantial chance to be out of contact by radio before 1942. As the war progresses, this chance declines and by 1944, they have the same chance of being out of radio contact as other countries.
Germans - Troops take less suppression from fire. They also suffer a small penalty when trying to rally.
Italy - Troops will sometimes surrender, even if not surrounded, in the Western desert, before 1943. During 1943, if in Italy, they have a greater chance to opportunity fire at enemy troops than normal.
Japan - Troops very, very seldom retreat, route or surrender. They also suffer a reduction in ammunition after 1941 and this reduction increases each year of the World War II. Their ammunition trucks suffer a similar penalty to that of the USMC.

New Unit Classes

Forty four new unit classes have been added. These include Platoon HQ, Airborne, Elite, Wagon, Horse Team, Bicycle, Heavy Machine Gun, Light Mortar, Leg Forward Observer, Heavy Mortar, Rocket Launcher and SP Rocket Launcher, Special and Guerrilla Forces, Armored Forward Observer Vehicle, Glider, Cargo Plane and Turreted Tank Destroyers. The Light Armored Car, Heavy Armored Car and Recon Tank all behave like armored cars. The "Heavy APC" can be used for units like the "Stuart Recce", that can carry protected troops, but are not normal APCs. The "Medium Tank", "Lend Lease Tank", "Captured Tank", "Captured SP Gun", "Special Tank" and "Very Heavy Tank" allow for greater granularity in armored formations. The "Armed Halftrack" protects infantry like a halftrack, but has limited carry capacity. The "Prime Mover" behaves like a halftrack, but usually has little or no armor. "Armored Infantry", "Armored Engineers", "Marines", "Second Line Infantry", "Medium Infantry", "Motorized Infantry", "Motorized Engineers" and "Conscripts" allow for greater granularity in infantry formations. The "Recon Halftrack" protects infantry and behaves like an armored car

Note that the Turreted Tank Destroyer class fixes a bug in the game that treats U.S. tank destroyers as having no turret. Turreted Tank Destroyers function as normal tank destroyers in all

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respects, except the computer will recognize that they have traversable turrets.

Gliders and Transport Aircraft

Two new unit classes, gliders and transport aircraft, are now loaded and assigned targets and turn to arrive during deployment. After any preliminary bombardment during the designated turn, these make their way across the map to deposit their troops as close as possible to the assigned locations. However, anti-aircraft fire, bad weather and bad luck can disperse the troops widely. When assigning transport and gliders objectives during deployment, the player may select the turn in which these units arrive. The hot key, 't' in the assignment screen will evoke a query, in which the player will type in the turn number. Each unit may be assigned a separate turn in which to arrive.

Commandos and Partisans

Commando and partisan units can be assigned targets behind enemy lines during pre-game deployment. During the game they may show up at the assigned locations as reinforcements. Exactly when the arrive will depend on a number of factors, including experience, how far the assigned location was from the starting lines and where enemy forces are located. They will often get delayed or redirected, so while they can be great assets, they only succeed in getting to their objective about 60-70% of the time.

New Terrain Types

Many new terrain types have been added, including:

- ***Field/Polders/Graveyard.*** When choosing the yellow crops button, it now evokes a pop-out box that offers the scenario author three choices for the type of terrain. Choose between fields, polders and graveyards. Polders are flooded fields that cost slightly (+1 MP) more to move through and are poor defensive terrain. Like fields, they may be placed on hill top and like fields may not be placed on slopes. Graveyard provides fair defense and does not hinder movement
- ***Mud****.* The game effects are similar to swamp, except that the ground is not sunken, as it is in a swamp. Units may become stuck in mud, although tracked vehicles will fare much better. This is not very good defensive terrain. In the desert, mud is a sand depression. In the Editor, click the mud icon to place mud hexes.
- ***Orchard****.* A good defensive terrain that functions like trees, although the lack of undergrowth means that they are less likely to block sighting. Click on the Orchard button to create this terrain in the Editor.
- ***Vineyard*****.** Similar to cropland except that it's more likely to obscure sighting. There is a vineyard icon in the Editor.
- ***Stream/Gully/Trench.*** The "Stream" button in the editor now evokes a pop-out box that offers the scenario author three choices for the type of terrain. The first is stream the second gully and the third trench. The stream and gully work the way they always have and are now both –2 elevation. The trench is –1 elevation, but may not be traversed by vehicles. The AI know about these changes and should be able to find its way around a trench using a routine similar to that used to circumnavigate buildings. Note that vehicles may not enter a trench, even if it has a victory objective in it. Placing dragon's teeth inside a gully creates an Anti-tank Ditch.
- ***Stone Wall***. Stone walls are assumed to be between 3 and 6 feet tall and will cause strange-looking blind spots. Only tracked vehicles can cross them, and only at the risk of throwing a track. However, a tracked vehicle may actually breach the wall. In desert, stone wall is a

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sandstone wall. To create stone walls in the Editor, click the stone wall icon and place as you would a road by clicking on two hexes. The computer will lay a wall between them.

- ***Hedge***. As with roads, only tracked vehicles may cross or breach them. Click the hedge icon to place. Place as you would a road, click two hexes and the program will create a wall between the two.
- ***Bocage***. Superb defensive terrain. A one-hex-long, straight hedge actually represents 50 yards of an old and buried stone wall, covered with high hedges, bushes and small trees found along the way. It is assumed to be between 12 and 18 feet tall, so tracked vehicles crossing them are assumed to be exposing their bellies as they crest the top. This weakness only applies across the target's front arc and only on turns when the vehicle moves. This penalty does not apply to the U.S. Sherman Dozer, which can breach bocage. Bocage is placed in the Editor similar to stone walls and hedges. Click the bocage icon to place. Place as you would a road, click on two hexes and the program will create a wall between them.
- ***Water Depth***. Water may now be depth 0 (coral reef), 1 (shallow), 2 (normal depth) and 3 (deep water. Obstacles called "Asparagus" may be placed in water, beach, swamp and other hexes. They function like dragon's teeth.
- ***Cliffs/Rocks/Boulders*** - This button evokes a query, where the user chooses which type of terrain to apply. Rocks are excellent defensive terrain and impassable to wheeled vehicles. Boulders are good defensive terrain and are impassable to all vehicles, except aircraft. A road will negate the extra movement costs. Cliffs may only be placed on slopes and are impassable to all units, except units of the "Special Forces" class and it will take all movement points of the unit to enter, which must begin movement adjacent to the cliff. A road will not negate the movement limitations of a cliff. A cliff is very bad defensive terrain. Rocks, cliffs and boulders are generally treated as very rough terrain. For instance, the chance for vehicular breakdown is increased for rocks and cliffs are a very bad place to try to land a glider.
- .***Swamp/Marsh -*** A new terrain type, called Marsh can now be evoked in the editor, by selecting swamp. This terrain is derivative, and therefore similar to swamp. Marsh may be placed on hill tops.
- ***Crops/Plowed*** – A new terrain type, Plowed fields, is brought up by using the Green Crops button that will give a choice between crops and plowed fields

.***Beach*** – when choosing beach, user is queried for sand beach or volcanic(black sand) beach.

- ***Sandstone wall*** - In desert, stone wall is a sandstone wall.
- ***Scrub Trees*** - In desert, some trees are scrub trees.
- ***Sand Depsression*** - In the desert, mud is a sand depression.
- ***Dunes and Snow Banks*** - If in the desert, high grass is dunes, if in the winter, snow banks
- ***Rice Paddies*** – In jungle, crops are rice paddies.
- ***Jungle*** – In this terrain, clear terrain and hills are a light brown/green with darker green edges.
- ***Rough*** – In this terrain clear terrain and hills are a dark brownish green

Jungle Terrain

The new jungle tile set will now automatically be used in battles where the terrain is jungle. This includes all terrain locations in Asia and the Pacific theater that are classified as jungle by the tables for the long WW II campaign and the battle generator. In generated campaigns, the jungle tile set will be used if Jungle is chosen as the terrain type.

Rough Terrain

The new rough tile set will now automatically be used in battles where the terrain is rough. This includes some locations in southern Europe, the Balkans and in the Mediterranean theater and are used by the long WW II campaign and the battle generator. In generated campaigns, the rough tile set will be used if Rough is chosen as the terrain type. In winter battles, the snow tile set will be used instead of the rough tile set.

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Hilltop Placement

Some terrain types that could previously not be placed on hills now can be located on hilltops, though not hillsides Eligible terrain includes Hedges, Orchards, Vineyards, Rice Paddies, Crops, Wheat Fields, Swamp, Marsh. Mud and High Grass. An icon lock has been added to help repeat a desired terrain icon

New Battlefield and Obstacle Effects

Caves
A new – and particularly nasty – fortification class. They cannot be hit by indirect or direct fire, except through the front entrance. However, flame-throwers will be more effective against Caves and Bunkers.

Fires
Fires may persist through several turns and may even spread downwind. The longer a fire burns, the more smoke that will linger over the battlefield.

Mines
Minefields are now much harder to spot. Engineers may now remove, ignore or even place new mines during the battle. Mines can also now be placed in shallow water hexes. Also, the number of mines left in a hex will no longer revealed to the opposing player.

Fording
Units may now ford shallow water.

Breakdowns
Vehicles may break down when trying to ford shallow water, move through mud or swamp hexes or crash through buildings. The can also break down if they spend a lot of time moving around at greater than half speed or in difficult terrain. If they do break down, they can occasionally be repaired. Using all your shots in a turn, or shooting to many “special opfire” shots can lead to weapons breakdowns. These can be repaired as well

Buildings
Units in buildings have their spotting range increased. Vehicles may try to crash through buildings.

Long World War II Campaign

No one can guarantee success in war, but only deserve it. --Winston Churchill

Players who loved the long World War II campaigns in Steel Panthers I are in for a treat. That option has been added to SP: WAW, along with the normal campaign generator and the user-defined campaign editor. The Long Campaign allows players to pick one of six armies, and use it

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in scenarios that begin when that nation first entered the war (1941 for the U.S., for example) and continue until the end of the war. As with the normal campaign, players choose a core force that is upgraded throughout the campaign. At the beginning of each scenario, players decide which theater of war they want to fight in (Europe versus Pacific for Americans, for example), so forces may shift back and forth between theaters throughout the campaign. Units may now be exchanged in the editor or upgraded in campaigns to the new unit types in SP: WAW, such as paratroopers or elite infantry.

New Countries

Six new countries were added to the game. These are Communist China, Nationalist China, Republican Spain, Nationalist Spain, the Philippines and the ANZAC (Australia and New Zealand) forces. These nations all have the proper terrain types, leadership and battle locations built into the game engine.

Editor Changes

Date

The precise day of the battle can now be selected for historical purposes, though it has no effect on game play. The hour of the battle can now be chosen in both the battle and campaign game generator. Otherwise the computer chooses day and hour based on the theater and armies in the scenario (some armies prefer to fight in the daytime). Visibility is strongly affected by the hour.

Length of battle

Adjusted by a button in the editor menu. Length can range from 1 to 60 turns, though in the battle generator, random battles will now run 22 to 40 turns.

Visibility

Maximum visibility can be up to 99 hexes

Weather

Weather can be selected. Weather values range from 1 to 6, with higher numbers indicating worse weather. Note that bad weather varies with the season – in Russia, level 6 indicates a blizzard, in the jungle a monsoon and in the desert a sandstorm. A value of 1 to 3 means relatively clear weather, although a 2 or 3 can mean fog, haze or light snowfall. A 4 or 5 will most likely create rain, light snow or possibly a windstorm.

Weather Values:

Temperate
1) Clear
2) Hazy
3) Foggy
4) Rain
5) Heavy Rain
6) Thunderstorm

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Desert
1) Clear
2) Clear
3) Clear
4) Dusty
5) Dust Storm
6) Heavy Dust Storm

Winter
1) Clear
2) Clear
3) Clear
4) Light Snow
5) Snowy Windstorm
6) Heavy Snow

Recommended Visibility:

Good weather

No Moon	2
Half Moon	6
Full Moon	15
Dawn/Dusk	28
Noon	45

Bad weather

No Moon	2
Half Moon	2
Full Moon	2
Dawn/Dusk	8
Noon	20

Terrain

The number of building and tree icons has been increased substantially. The terrain palette includes buttons for terrain such as gullies, stone walls, hedges, bocage, cliffs, orchards, vineyards, trails, mud, marsh, polders, rice paddies, multi-hex buildings and even graveyards.

Multi-hex Buildings

New and expanded multi-hex buildings have been added. Click on the multi-hex icon to place multi-hex buildings. The program will query the building type, from 0 to 2. This number will determine the palette from which the program will randomly pick a building. The building selected can be locked in for multiple placement with the “Z” key. Multi-hex buildings may not be placed too close to other terrain and if the user attempts to place them there, nothing will happen. This was done in an effort to prevent “invisible buildings” hexes, which have been a problem in past versions of Steel Panthers. There are still some possible instances where rubble will appear inappropriately. We apologize for this and will continue to pursue a solution.

When the user clicks on the pavement icon, a query as to choice – 0 to 5 -- of pavement icon will occur. A “0” indicates no pavement, while other numbers reflect dirt, gravel, cobblestone, cement or sandstone. The current pavement choice will appear at the bottom of the screen. The pavement choice determines what pavement appears on the screen if the pavement icon is currently selected, or what pavement appears beneath buildings if the wooden building, stone

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building or multi-hex building icon is chosen.

Wheeled vehicles can no longer enter hexes with buildings, and the number of building damage icons has increased. Buildings that have been damaged should now have a greater variety in appearance.

Lock Key In Editor

Scenario designers can now use a lock option to lock certain graphic images when making maps. You can lock a building with the Z key and then unlock it by pressing the Z key again.

Terrain Effects Chart

A terrain effects chart can be brought up during map editing by using the “I” key.

River Crossing Hot Key

A hot key “N” is now available in the map editor screen, which sets the mission to a river crossing. This will allow the infantry to be equipped with rubber boats.

Encyclopedia Changes

Armor slopes for armored vehicles are now displayed, as well as whether vehicles are equipped with armored skirts. Text about each unit can now be displayed on the lower half of the screen. The program looks for a text file with the appropriate name, which should be listed in the ENC sub-directory of the OOB file. If the side view of the unit cannot be found, a new picture that says “Picture not Available” is displayed instead. In addition to the icon (.sym) file, the text file (txt), side view (.pic) and sound file (.snd) are now displayed. Fortifications, naval fortifications and caves now also appear in the Encyclopedia. Range Finder value will now appear also.

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Detailed Player Guide

The Selection Screen

After the opening cinematic, you'll see six buttons marked "Solitaire Play," which takes you into the game,, "Online Play" takes you to the start screen for online play. "Timed Play" allows you to practice vs the AI with the timer active, but without going online. "Hotseat Play" which allows 2 people to play at one computer. "Play By E Mail" which sets up e mail play "Preferences" allows you to chage how the game plays and "Quit," which takes you back to Windows

Clicking on "Solitaire Play" brings you to the Selection Screen, which is the central menu of the game. From it, you can play scenarios, battles and campaign games, create and edit your own scenarios and campaigns, and peruse an encyclopedia that details the weapons in SPWAW.

Clicking on "Online Play" allows you to choose "Create" or "Join" If you wish to join a game another play has set up, click on join and enter a nickname and the IP of the game you wish to join. IF you wish to create a game, you can choose a scenario, or a Battle. A scenario must be edited to assign units to each player before it can be played online. Selecting the units and pressing F1 to F6 for player one to six accomplishes this. A battle will query each player to buy units (up to an appropriate fraction of the total points. Key differences from the regular battle generator are selecting the number of players per side, and the buttons that set unit purchase and deployment to the computer or human – human is recommended.

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Choosing Scenarios and Campaigns

SP: WAW allows you to choose from a multitude of scenarios, each of which is a stand-alone battle. In addition, the game comes with several pre-designed campaigns, each of which is a series of linked scenarios. And if that wasn't enough, SP: WAW features a campaign generator system, that allows you fight campaigns that stretch from the opening salvoes of World War II until the conflict's bloody end. If a quick game is what you are after, use the battle generator to construct a quick game. Remember that scenarios must be edited to assign units to the desired sides before it can be played online.

STEEL PANTHERS: WORLD AT WAR
SCENARIO LIST
Tutorial for SPWAW (WBW)
SPWAW TUTORIAL
Turns: 15
Welcome to Steel Panthers, World at War. With this tutorial, you'll begin to understand how easy it is to play this marvelous game.
If you are already proficient at the Steel Panthers Series, you probably won't need this tool. To those, however, who have not had the treat of playing this game, the tutorial is well worth your time. Each scenario begins with this type of file. It will give you information of both historical and gaming interest. It will tell you the "who," "when," and "where" of the battle in which you are about to engage.
MORE
NEXT
version 4.0
solitaire
START
LOAD SAVE
SCENARIO
CAMPAIGN
BATTLE
EDITOR
PREFERENCES
EDIT CAMPAIGN
ENCYCLOPEDIA
EXIT

Playing a Scenario

From the Selection Screen, click on the "Scenario" button. Up to 1,000 scenarios can be listed. Left-click on the one you want to play. Remember that while SP:WAW comes with many prepackaged scenarios, many more are available from the Matrix Games Website at www.matrixgames.com

When you select a scenario, the "Start" button at the top of the Selection Screen will become active. Click on it, and you'll see a Control Screen with two toggle switches. These determine which sides are controlled by human or computer players. The default setting is for Player 1 to be human-controlled. If you are playing with another human player, instead of the AI, ,you will be prompted to enter a password. If you do nothing and hit enter you will play in hoseat mode and the game will be saved in the Save folder and will not be protected by any security. The file will

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compress substantially. If you enter a password, then your turn will end immediately and prompt you to send the game to your opponent for password entry. This makes the game a “secure” game saved in the E-mail folder and subject to security to prevent most forms of cheating.

Click on “Continue” and you will see the Player Screen, which allows you to begin your move, skip your turn and allow your opponent to move, adjust the AI skill level if you’re playing the computer, or exit the game.

Playing a Campaign

Left-click on the “Campaign” button. SP: WAW offers three types of campaigns. One is a pregenerated campaign of linked scenarios, such as the “Preparing the Way” campaign. The second is the Long World War II campaign, which allows you to play one of six major combatants in a series of random scenarios between between 1939 and 1945. The third is the campaign generator, which allows you to play one of 27 possible combatants between 1931 and 1949.

The exciting feature of the campaign system is that you’re given an allotment of build points (similar to money) to choose what forces you’ll command. You can recreate historical formations, or mix and match different vehicles, foot soldiers and weapons. For detailed information on playing campaigns, see the Campaign section below.

Playing a Battle

SP: WAW Battle scenarios are stand-alone battles, as in the regular scenarios. However, you can quickly customize the battlefield as well as use build points to pick whatever units you’d like to command.

The Game Editor

SP: WAW comes with an Editor that allows you to design your own scenarios and campaigns, or modify existing ones. For more information, see the Game Editor section

Load and Save Games

SP: WAW allows up to 1,000 scenarios, as well as up to 1,000 saved games and up to 1000 pregenerated campaigns.

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Preferences Screen

This screen is opened by clicking on the “Preferences” button in the Opening or Selection Screen. The various buttons are described earlier.

The Battle Map Toolbar

You control your units through the Battle Map Toolbar, which is on the right side of the Battle Map. The buttons on the Menu are marked:

“

- N” – This cycles you to the next unit.
- “P” – Cycles to the previous unit.
- “H” – Displays the Headquarters Screen.
- “G” – Cycles to the next formation.
- “L” – Loads a unit onto a transport vehicle.
- “C” – Orders the unit to fire a single weapon, rather than all its weapons.
- “B” – Calls in indirect fire (an artillery mission) or an air strike.
- “R” – Rallies a friendly unit.
- “F” – Orders a unit to fire all its weapons.
- “T” – Cycles among all enemy units that a friendly unit can shoot at.
- “Z” – Orders a unit to fire into a hex, rather than at an enemy unit.
- “X” – Commands a unit to lay smoke.
- “+” – Zooms in the view.
- “-“ – Zooms out the view.
- “U” – Removes smoke from the display, so players can see the battlefield.
- “Clipboard” – Displays the Unit Roster.
- “Undo (the red circle”)” – takes back a unit’s move.
- “Red Flag” – Sets a unit’s objective.
- “E” – Displays the Encyclopedia.
- “Upward arrow” – Ends the game.
- “S” – Saves the game.
- “>” – Ends the turn.
- “Preferences Bar” – Displays the Preferences Screen.
- “Help” bring up the help screen layover

Battle Map Controls

- **Go To Next Unit** – This button cycles you through each individual unit in your forces
- **Go To Previous Unit** – This button takes you backwards through the roster
- **Go To the Headquarters Screen** – This button take you to the unit roster, whre you can set waypoints and reaction turns
- **Go to Next Formation HQ Unit** - Cycles to the next formation
- **Load Unit** – This button loads or unloads infantry or artillery on to trucks, barges, HT’s or other carrying vehicles
- **Fire Specific Weapon at Current Target** - – Orders the unit to fire a single weapon, rather than all its weapons
- **Attack Hex with Indirect Fire** – This button brings up the Indirect Fire screen where you can plan artliiery barrages and airstrikes

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- **Rally** – This button allows the player to rally the selected unit
- **Fire Weapons at Target of Current Unit** – This button fire all of the unit's weapons at the selected target.
- **Select Direct Fire Target** - This button cycles the player through all of the targets within the active unit's Line- of- Sight with the target description and the percentage of hitting. The player can choose to fire or simply acquire the target for later attack
- **Attack a Hex with Direct Fire** - This button targets a hex for direct fire. Useful for attacking hexes where the enemy is possibly hiding to suppress them or used for engineer units to blow holes in wall or bridges.
- **Create Smoke in a Hex with Direct Fire**- Allows the active unit to fire smoke in the target hex
- **Zoom In** – Magnifies the map. There are 4 zoom levels
- **Zoom Out** – Reduces the map magnification
- **Clear Dark Hexes** – Clears the battle map of any shaded or smoke filled hexes for better viewing.
- **Go To the Unit Menu** – Take you to the Unit Screen, where you can find out information of the condition of your units such as damage, shots remaining and kills
- **Undo the Last Move** – Allws you to undo your lst move if you have not spotted, been spooted or fired on by the enemy.
- **Set Formation Objective** – This sets the objective for the active unit's parent formation (B0, C0). This control can be combined with waypoints for computer control of the formation.
- Go To Weapons Encyclopedia – Opens the Encyclopedia.
- **Quit Game** – Ends the current game. You will be queried about if you are sure.
- **Save Game** – Saves the current game. Left click a slot on the save menu and the turn number and sides are entered automatically.
- **End Turn** – End the current turn. You will be queried about if you are sure.
- **Preferences** – Brings up the Preferences screen
- **Help**- Brings up the help menu overlay with the Button and Hotkey descriptions

Hot keys available while playing on the battle map:

Period - Stops video playback (hold key down)
; - Set objective for selected unit
- - Zoom out
+ - Zoom in
A - All formation toggle
B - Bombard with artillery
C - fire individual weapons
E - Encyclopedia
Enter - Unit moves (chat in Internet Play)
F - Fire selected unit at it's current target
G - Go to next formation
H - Headquarters list
I - Terrain effects screen
L - Load selected unit
M - Toggle stance
N - Next unit
P - Previous unit
Q - End turn
R - Rally selected unit
S - Save game
T - Target unit
U - Clear darkened hexes and smoke
V - View recording of last player turn

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X - Direct fire smoke
Y - Range
Z - Direct fire bombardment
Space - Show unit data
Tab - Show chat buffer
F1 - Help Screen
F2 - Time Out
F3 - Command Intervention
F4 - Reinforcement Request
F5 - Chat and Message Review
F5 - Color Choices Up (when entering chat)
F6 - Color Choices Down (when entering chat)
F7 - Unit View Radius: What the unit can see from that hex
F8 - Unit Movement Radius: Where the unit can move to from that hex
F9 - Surrender
F10 - Used by Roger Wilco for Internet voice chatting
? - Toggle ID Flags
pause/break – pauses game

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What the Numbers Mean

"Nuts!" -- American General A.C. McAullife

The key to winning in SPWAW is using your forces wisely. And to use your forces wisely, you must understand the capabilities of your forces. This is best explained by describing the Unit Information Screen, which is accessed during battles by right clicking on units.

Leader Data

In the upper right corner of the screen is information on the leader commanding the unit. Leaders are rated for their abilities to rally friendly units' fire, as well as their skill in directing the fire of friendly infantry, artillery and armor. High numbers are best. Rally rating is the base percentages chance that a leader will pass a rally check and reduce a subordinate unit's suppression by one half. The Skill ratings for armor, infantry and artillery are used when the leader checks to see how successful the unit is at a variety of tasks like spotting for artillery, assaulting tanks, using anti-tank weapons, hitting targets and avoiding being spotted.

Current Status

In the upper left corner is displayed the unit's speed, if it's moving. Moving infantry only one hex confers considerable benefits to defense and spotting. Moving more than one hex makes it much more vulnerable to spotting and fire. Vehicles are incrementally more likely to be spotted and incrementally less likely to be hit for each hex they move. Also shown is the type of command link that it has with its headquarters (or whether it's even in contact), and its current level of

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suppression (reflecting disruption from enemy fire). Its firing accuracy will be cut by a percentage equal to one-half the current suppression level. Units with zero suppression are given a 33% accuracy bonus for not being in action yet A unit can get a suppression point or two at random once the shooting starts as it can think the enemy is closer than it may be. A unit with suppression can have is status changed form “ready” to “pinned” (“buttoned” for vehicles), retreated, or routed. As the suppression becomes a bigger fraction of a unit’s morale, its status worsens. Pinned units can’t move and buttoned vehicles do not spot the enemy very well and are much more vulnerable to infantry assault. Retreated units will move under computer control toward their “retreat hex” where they will leave the map if not rallied.

Retreated and routed units will not suffer as much fire (the firepower of those shooting at them is halved). Retreated units will often return fire if fired upon and, if doggedly pursued, can go to pinned status. Routed units are running head long for the rear and will only occasionally defend themselves, but can decide to put up a fight if continually fired upon.

Weapons

Each unit’s weapons are listed, along with the types of ammunition carried and the maximum range (in hexes) of the weapons. In addition, the number of smoke rounds carried is listed, as is whether the unit (usually a vehicle) is equipped with smoke dischargers that project a quick smokescreen in the 3 hexes to the front of the unit.

Experience

Higher experience numbers indicate a unit that will shoot better, be tougher on defense, and degrade in status more slowly under enemy fire. Experienced units are less susceptible to suppression, have a better chance to hit enemy units, spot enemy units better, are harder to spot themselves, and close assault tanks better. There are four basic experience levels: Green (30-49), Average (50-79), Veteran (80-99), and Elite (100+). Units gain experience at the end of each mission if you are playing a campaign game. Unit experience does not change during a game. The range is 30 to 140 experience points. Elite units, for example, are units that have over 100 experience points.

Morale

Higher numbers indicate the unit will take more suppression before it becomes pinned, retreated, or routed. The morale value is used in some circumstances to see if a unit takes certain action, like withdraw under fire, or assault a tank. When a unit has sustaining greater than 60% casualties, a morale check may result in the unit “surrendering or dispersing”

Damage

For infantry units, this indicates how many men have become casualties. For artillery pieces, this reflects casualties among the crew. For vehicles, damage indicates how many systems have been damaged and/or crew casualties have been taken.

Speed

The current rate at which the unit can move in movement points. Units pay varying amounts of movement points to enter a hex based on their movement class and the terrain in the hex.

Men

The number of men in the unit. If “Reduced Squads” is on, the number of men in a squad will very randomly representing previously sustained casualties. The number of men who pass an

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experience check will fire primary Infantry class weapons in slot one. When a unit has sustaining greater than 60% casualties, a morale check may result in the unit "surrendering or dispersing"

Radio

This line indicates whether the unit is equipped with a radio. Radios enable leaders to exert better control over their units. A unit loses contact with its formation HQ if it is not within 3 hexes of it, unless it is equipped with a radio, in which case it attempts to maintain radio contact. In campaign play damaged radios are repaired with a probability equal to twice the availability for that unit. Radio repair does not cost any campaign repair points.

Fire Control and Range Finder

The Fire Control and Range Finder ratings can provide a substantial bonus to a unit's ability to hit by improving its accuracy. The Fire Control rating is multiplied by five and added directly to the accuracy rating for the unit in question. The range, speed of the firing unit, the speed of the target and terrain it is in, the unit's experience, suppression, and the leader's command rating for that kind of unit then modify this number. This value with one added, times 6, times 8, times 10, and times 12 is used to define "range bands" that impose penalties of "x times 0.67", "x times 0.5", "x times 0.33" and "x times 0.25" to the hit chance. For example a unit with a Range Finder value of 2 has a normal hit chance out to (3*6) 18 hexes (900yrds), from 900-1200 its multiplied by .67, 1200 – 1500, by 5, 1500-1800, by .33 and beyond 1800, by .25. Fire control and range finder damage is automatically repaired between campaign battles.

Size

Large units are easier to spot and hit. Personnel are generally a 1, while heavy tanks can exceed 5. The larger the unit, the higher the chance it will be hit by artillery. Size also affects the damage potential of shots that penetrate its armor.

Cost

The value of the unit. This figure is used when players purchase units in campaigns and Battle scenarios, and also in calculating victory points.

Carry Cost and Carry Capacity

Units are rated on how difficult they are to carry (the Carry Cost) as well as their ability to transport other units (Carry Capacity). A one- or two-digit number is the number of men the unit can carry. A preceding 1 indicates it can also tow a small or medium gun. A 2 indicates it can tow a heavy gun. Thus a 106 code indicates that the vehicle can carry a medium gun and up tot six men (usually the gun's crew). A 212 means it can carry 12 men and tow a heavy gun. Units carry cost is the converse. It requires a vehicle with a carry capacity of at least 104 to carry a small gun with a four-man crew.

Set Range

This is the maximum range at which a unit may engage the enemy during the other player's movement phase. For example, when set to **7**, enemy units within seven hexes may be fired upon if there are shots available and suppression is not too high. Clicking on this number enables players to adjust the range.

Stance

Clicking on this line changes a unit's stance from "Advance" (an offensive mode) to "Defend." Hex coordinates are also listed, indicating a unit's objective. This information is only relevant

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when Command Control is enabled in the Preferences Screen. The difference is that units in "advance" stance can move, while units in "defend" stance will find cover in the hex they are in and stay there. Units must pass an experience check to find cover in a hex. Units in defend stance receive "special Opfire" about 33% more often than when in advance stance.

Change This Unit / Whole formation

This only applies to headquarters units (those whose ID numbers end in 0). Changes can be applied to the entire formation the HQ commands.

Armor Diagram and Penetration Table

This is a very important part of SP: WAW. The Armor Diagram the numbers around the small image of the vehicle's hull and the numbers around the turret) indicate how strong a vehicle's armor is in those areas. Note that tanks are most strongly armored in the front, and possess weaker armor on the sides and rear. There are separate values for a vehicle's hull and turret.

Above the Armor Diagram is a table that lists the slope of the vehicle's armor. This is more for those who are strongly into the minutiae of tank design, but suffice it to say that the better the slope of a vehicle's armor, the greater the chance that enemy rounds will ricochet. Some vehicles, such as American tank destroyers, had no armor on top of their turrets. These units have their turret armor values marked in red.

Below the Armor Diagram is the Penetration Table. This lists the penetration (in millimeters) of a given shell at a given range. The formulas are complex. But take an American Stuart light tank (with a 37-millimeter gun that fires an armor-piercing round with a penetration of 63 at a range of 10 hexes) that suddenly comes upon a German Tiger heavy tank with a frontal armor of 100. What is the correct tactic for the Americans? Run fast or pray hard.

Special Ability

This indicates any special ability a unit has such as such as engineer, recon, or fast response artillery.

Movement

Designer's Note: *Traveling from your home to the grocery store is easy. Traveling across a battlefield, into the teeth of enemy fire, is not. This was especially true in World War II, which marked a new type of warfare. Before 1939, most soldiers either marched on foot or rode horses into battle, while today many armies are fully mechanized. But mass-production of vehicles was relatively new at the time of the Second World War, which meant that some nations (particularly the U.S.) had plenty of vehicles for everyone, while others (such as the Germans and Russians)*

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only had enough to fully equip a minority of divisions.

Remember that the race is not always won by the swiftest. Players in SP: WAW will find themselves coordinating vastly different units, from fast-moving tanks and mechanized infantry in half-track personnel carriers, to cavalry and good old foot infantry. Those who think tanks can blitz through any terrain will find that woods, swamps and jungle are ruled by infantry.

Movement in SP: WAW is simple. Go to the main map, left-click on the unit you wish to move and then left-click on the destination hex. You don't have to click hex-by-hex to get to a distant spot. Pick your destination, and the computer will move the chosen unit until it reaches there or until the unit runs out of movement points. Combat friction can cause you to lose movement points during your turn if you are spotted by the enemy, or shot at.

How fast a unit can move is expressed by its Speed (number of movement points), which measures how far it can move in a single turn. Infantry speeds tend to be 9 or less, while vehicles have speeds up to 36. However, vehicles spend more of their movement points to move through certain types of terrain (such as swamps), so they don't always travel further than foot units. Infantry pay 2 for most "regular" terrain. Vehicles (depending on class) can go the full distance only on a paved road. See the Terrain Movement Cost Chart.

Moving Entire Formations

A quick way to move an entire formation (all the units with similar letter designations, such as B1, B2, B3, etc.) is to use the "All Formation" command. There are some tricks to it as outlined below. Unfortunately, they will also arrive in a jumble, so this is not a good option if you like neat formations. Also, it's an easy way to march an entire formation into an ambush.

1. Be sure Command-Control and Move Radius are turned on in the preferences menu.

2. Type a semi-colon or use the blue flag icon to assign an objective. Then click on the hex where you want the formation to go. A blue flag will appear.

3. Click on 0 (leader) of the formation you want to move. The move radius of that leader will be highlighted. Depress the "a" key.

4. Click on a hex within that move radius where you want the formation to go.

5. You will see the entire formation go toward that hex.

A word of caution. Units may end up in mud or marsh hexes. They may not choose a path you would have chosen for them individually.

Another way if units are behind your lines is to use the "h" key and at the headquarters menu place the unit under computer control and give it waypoints to follow. Units will follow the waypoints until they reach the end, or are fired upon by enemy units. Note that this is not the same as assigning a unit an objective under the Command and Control rules. It's just a handy way to get reinforcements to a particular place, especially in big scenarios on very large maps. This can be especially useful in online games with a severe time constraint. The computer-controlled troops will always move before your turn is saved.

Waypoints and Objectives

Scenario designers may assign waypoints to computer-controlled formations, or players may assign them to forces that they are allowing the computer to run. The AI will follow these way points, moving and fighting as needed, until the waypoints are all reached or until turn 25. To activate waypoints for formations that a human player has ordered the computer to take over, go

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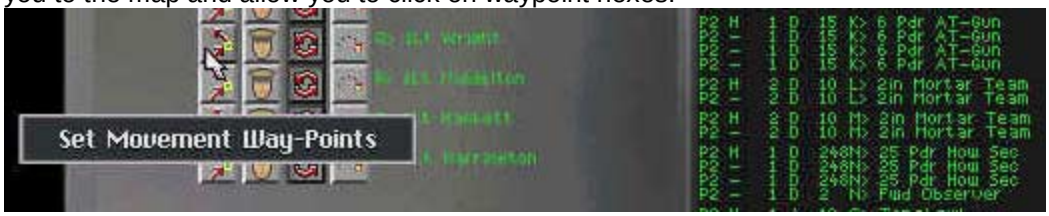
to the Headquarters Screen and click on the icon of a human next to the appropriate formation. A computer icon will then appear. Next, click on the waypoint (the far left) button, which will take you to the map and allow you to click on waypoint hexes.



The player must still set objectives for the formations under human control, if the command and control options are on. Reinforcements will now activate properly and may be assigned waypoints so that when they arrive they move to where the scenario designer wanted.

The scenario designer may now also designate certain formations to become active on a certain turn. They will not move until the designated turn unless fired upon.

The scenario designer can now place a Reactive Victory hex on the map and it will be set at 19 victory points by default. The victory hex will not be visible to the human player at all and the AI will ignore it since it is less than 20 victory points. When the human player moves over the Reactive Victory hex +5 is added to the victory level. This will now make the victory hex worth 24 points and now the AI will attempt to go after it. This is a great way to get the AI to react to human players and spice up a scenario. None of the victory points assigned to these hexes are counted at the end of the game.

Cautious Movement

Infantry units gain a defensive bonus if they only move one hex in a turn that they are fired on. They also are less likely to be spotted if they move slowly. Such units are 25% as vulnerable as units moving at a normal speed. Stationary units are 20% as vulnerable.

Fire and Movement

Moving units will have their move interrupted by enemy fire (called opportunity fire). If they survive, they can continue moving.

On the other hand, it was harder to hit moving targets, particularly before fire control computers were invented. Moving units receive a defensive bonus that makes them harder to hit. Infantry units however are five times more vulnerable to the fire if it does hit them when moving.

Transport and Towing

Vehicles such as trucks and tanks must tow heavy weapons, particularly artillery pieces.

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Personnel units can climb aboard trucks, half-tracks and jeeps. In addition, tanks may also carry infantry. If the personnel units are small enough, sometimes you can carry more than one in a vehicle. If you try to load a unit larger than the unit can carry, you will be prompted if you want the unit to load anyway and leave the stragglers behind. If you say yes the excess men will be counted as destroyed for VP purposes.

Remember that in order to load a unit, the transport vehicle must be in the same hex as the cargo. Put them in the same hex, highlight the unit to be towed and then hit the Load button or "L" hotkey.

Routed or retreating units must be rallied before they can be loaded. Pinned units can be loaded, although they will assume the suppression level of the carrying vehicles.

Machine guns, mortars, anti-tank guns, flak guns, howitzers, rockets launchers, infantry guns, light mortars, heavy machine guns and heavy mortars may not fire their primary weapon on the turn they unload from a vehicle or move.

Combat Friction Movement Limitations

Soldiers have a tendency to slow down and become more cautious when they are being shot at or when they know enemy troops are in the vicinity. To reflect this, the movement points a unit is given in a turn is often less than its maximum speed.

- Unit has been fired upon within the past two turns (# next to name in unit info display): Infantry - 50% of Speed, Vehicles – 67%
- Unit is seen by enemy units but has not been fired upon (* next to name on unit uinfo display): Infantry – 67%, Vehicles 100%
- Unit sees no enemy units and has not been fired upon (no symbol): Infantry - 100%, Vehicles 100%

Note that this is dynamic during a turn, so a hex that is in the units highlighted movement radius, may suddenly not be reachable if it is spotted or shot at.

Weather and Movement

"Ice was causing a lot of trouble since the calks for the tank tracks had not yet arrived. The cold made the telescopic sights useless. In order to start the engines of the tanks fires had to be lit beneath them. Fuel was freezing on occasions and the oil became viscous" -- General Heinz Guderian

Units have less chance of sighting and move more slowly due to fog, haze, rain, snow and dust storms. Units traveling on paved roads, in the rain, suffer less of a movement penalty than before.

Why Units Won't Move

Units may not move for several reasons. The most likely reason is that Command & Control is turned on, which is the default preference. Artillery pieces and other heavy weapons may only move if they are towed. Units that are routed or are retreating from enemy fire may not move voluntarily (the computer will control them as they head to safety in the rear at the end of each turn). But if you can rally them, they can move.

Also note that if you're using the optional command control rules, units set to "Defend" (as compared to "Advance") will not be able to move unless their headquarters expends command

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points. Also units that are not assigned an objective and are not in communications to receive a new one won't move. Pinned units won't move until rallied. Vehicles won't move if immobilized by terrain or combat results.

Stacking

More than one unit may enter and remain in a hex. To order a friendly unit to enter a hex already containing another friendly unit, hold down on the shift key while clicking on the destination hex.

Units may move into hexes containing any number of friendly, enemy or wrecked units as long as they have the movement points to do so. Entering a hex already occupied costs one movement point per additional friendly, enemy or wreck unit. Thus moving into a hex with 3 friendly units, 2 enemy units and a wrecked vehicle would cost 6 additional movement points, in addition to the normal cost of entering the terrain.

Unit Status

A unit's movement and combat abilities are affected by its current status, which is displayed at the bottom of the Battle Map. Units may be in one of several modes:

- ***Ready:*** Ready for action. Your units have a much higher chance of hitting targets and of spotting enemy units if they haven't moved.

- ***Entrenched****:* In a prepared position. Dug-in units look as if sandbags surround them. Units are difficult to hit when entrenched, or in protective cover such as under trees or inside buildings. Units may start entrenched when they are the defenders in an Assault scenario.

- ***In-Cover:*** The unit has scouted out what cover it can find in the hex, and perhaps scooped some hasty foxholes. Though its defense bonus is not as high as an entrenched unit. Units in-cover are symbolized by a series of little foxholes around in the hex.

- ***Moving:*** Moving units do not spot enemy units as well as positioned units and have a reduced chance to hit units they shoot at.

- ***Buttoned:*** Applies only to vehicles. Enemy fire will cause the crew to close the hatches, reducing their spotting ability.

- ***Pinned:*** A state caused by heavy enemy fire. Pinned units may not move, and their effectiveness at shooting and spotting is reduced.

- ***Routed:*** Hit with enough fire, units will rout. They will run away from the battle until rallied or until they leave the map. The computer, rather than players, controls these units. Routed units only rarely defend themselves, but if pursued doggedly, can decide to go down fighting

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and revert to pinned status. Combatants did not fire as intensely on units obviously breaking off and not a threat, so firepower against them is halved.

- ***Retreating:*** Enemy fire is causing the unit to fall back from an untenable position. The computer, rather than players control these units. They will halt to rally rather than leaving the map. They are also more likely to revert to pinned status and, in general, return fire more voluminously than routed units. As with routed units, they are not seen as a great threat, so firepower against them is halved.

A unit may have additional symbols displayed after its status:

***** — An asterisk appearing after the unit's status indicates that the unit has been spotted by at least one enemy unit. This may seem incongruous that a unit "knows" it is being watched by unseen eyes, but accounts of combat are full of tales of troops who sensed they were under observation. Most likely they detected subliminal cues of sound, smell and environment. The intent of the rule is to reflect the fact that troops became more cautious when they thought the enemy was in the immediate vicinity.

— A "pound sign" appearing after the unit's status indicates that the unit has been fired upon in either the current turn or the previous turn. This means that firing on a unit, even if using small arms fire on a tank, will let the target know you know they are there. It will often pay dividends, reducing enemy movement and hit chances. Troops able to deploy and engage completely unmolested have decided advantages in freedom of maneuver and hit chances.

Spotting

Units can't really shoot at what they can't see (although SP: WAW allows blind fire into hexes suspected of harboring enemy units, it isn't terribly effective unless using an assault gun). A unit's chance of spotting varies with such factors as whether it's a buttoned vehicle, the type of enemy (infantry in a woods or building is hard to spot) and whether the unit is suppressed. Spotting ability is reduced for turreted vehicles, and slashed even more for non-turreted vehicles such as trucks. Note that snipers are very, very hard to spot.

The game determines a "score" for the spotting unit and the target, and then adds a random number to decide whether the unit is within spotting range under the circumstances. If in range, it is detected. If out of range, it is not. If the Limited Intelligence option is on, units will have their spotting range recomputed (with a new random number) so units "on the bubble" may come in and out of detection range without moving, as the environment (especially smoke on the battlefield) changes.

Version 1.0 had a toggle for hidden forts. This button has been removed, and the option is considered off by default.

Limited Intelligence

"With amazement and disappointment, we discovered in late October and early November that the beaten Russians seemed quite unaware that as a military force they had almost ceased to exist." -- General Blumentritt

When playing with the Limited Intel preference off, your units spot adjacent units automatically if those units have fired at your unit. Don't forget that if a vehicle drives right next to one of your infantry units in a building or woods and you don't fire at them, there is a chance that your unit may go undetected by the enemy. The probability depends on the current Visibility level, whether

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the enemy vehicle is carrying infantry, and the experience level of the enemy vehicle. Infantry are normally able to see adjacent units.

When playing with the Hidden Fire preference on, there is a chance your unit may not spot enemy units adjacent to them, even if that unit fired at them. This makes for more realistic game play as this allows infantry to sneak up on vehicles in rough terrain, but it is more difficult to play at this level.

The size of the hidden unit will greatly affect its chances of being spotted. Units with a size value of zero can shoot several times without being detected.

Recon Special Ability

Some infantry and vehicular units have the Recon special ability. This gives recon infantry a 25% spotting bonus, while recon vehicles do not suffer the normal 50 percent spotting penalty for vehicles. This is a bonus given to a formation using the “1” special flag in the Order of Battle editor.

Combat

"No bastard ever won a war by dying for his country. He won it by making the other poor dumb bastard die for his country" -- General George S. Patton, Jr.

Designer’s Note: *“What can be seen can be destroyed.” That old saying has been true ever since gunpowder was invented. Yet players accustomed to the one shot – one kill technology of today will have to get used to a different way of war. Fire control on Second World War tanks was relatively primitive, so that hitting a target with the first shot was difficult unless the range was point-blank.*

As in real-life, players will have to use combined arms. Some tasks are suitable for tanks, other for infantry, while a well-placed artillery barrage will decide many a battle. Even the most awesome weapons are vulnerable if used improperly. Stories are legion about heavily armored German Tiger tanks that survived numerous hits from Allied tanks. Yet (very brave) infantrymen who stalked them with a simple bazooka occasionally knocked out even those steel monsters. Infantry need tanks to knock machine gun nests, pillboxes and enemy armor, while tanks need friendly infantry to root out enemy foot soldiers waiting in ambush with their anti-tank rockets. Commanders who understand the strengths and weaknesses of the units and weapons under their command will win the game.

Combat uses the same point-and-click system as movement. Choose the firing unit and left-click on the target. Your unit will fire all of its weapons. Or, use the Target button (the “T” hotkey) to cycle among all the enemy units that are visible to the firing unit. Each type of weapon carried by a unit (say, a cannon and various machine guns carried by a tank) gets a variable amount of shots. When unloading any unit from transport, the unloaded unit loses one shot for that turn.

Remember that shots are the number of times that a unit can fire during its turn. This varies according to unit type (big guns take longer to load), number of men in the unit (if an anti-tank gun loses one or two of its crew members, then they are unable to load the gun as quickly), status of the unit (pinned units get less shots), experience level of the crew and the leadership value of the unit leader. Elite units can actually receive more shots than inexperienced units. You usually

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receive at least one or two shots per turn unless the unit is in bad shape.

You may make individual weapons inactive by clicking on them in the Unit Status Screen, and then clicking on the name of the weapon. If the weapon is listed in green, it is on. If in red, it is off. This can be used if you absolutely do not want the weapon to be used, even if the unit is fired upon. The AI can override the Opportunity fire range restriction if the unit is fired upon.

Hitting the "C" key allows a player to choose one weapon from a firing unit. When playing with the optional limited ammunition rule, this allows, say, a friendly tank to conserve its cannon ammunition while using the plentiful ammo of its machine guns.

Accuracy

When you move the cursor over an enemy unit that's within range of friendly forces, or use the Target key to cycle through enemy units, a pop-up box will display the percentage chance of a hit. At long range, weapons will tend to have poor accuracy (no fire control computers in 1939), with hit probabilities of 2 percent or so. If you're playing with limited ammunition rules, you can take a lot of low-odds shots and run out of ammo quickly. Close-range shots mean letting the enemy come dangerously close, but hit probabilities can exceed 90 percent. There is always a 1% chance to hit or miss in any shot.

A unit's experience and the skill of its leader a unit's leader are crucial. Those numbers are checked every time a unit fires. If the firer passes both the experience check and the leader skill check, it gets a big bonus to its accuracy. If it passes the experience check but fails the leadership skill check, its hit probability is normal, while failing the leader skill check results in a penalty. Thus fire from veteran troops is deadly, while green units will be much less effective.

The hit probabilities shown are very rough. Range, suppression, movement, terrain, and weather will all affect the final number. For example, against entrenched infantry, hit probabilities won't be much higher than 30% unless the firing units are elite. In general, a unit's accuracy is based on its accuracy rating. This represents the range at which the unit has a 50% chance to hit. This is adjusted based on the range of the target, the maximum range of the weapon and whether it is small arms fire or not. Other modifiers include

- ***Target size.*** This affects hit probablities, with larger targets more like likely to be hit. Terrain offers protection by reducing the effective size of a target. Target size modifers range from 240 for a big size 5 target, to an adjusted size of –4 for a small target. The

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formula is modifers/100, multiplied by base accuracy.

- ***Suppression.*** Accuracy is affected by the suppression level of the firing unit. Accuracy is reduced by Suppression/2.

- **Movement.** A firing unit that has previously moved will be much less accurate, while a target that is moving is harder to hit. The modifier for moving targets is hexes moved times 3, added to 3 times the firing unit's fire control rating, and then subtracted from a base of 70. For a firing unit, it's 6 times the number of hexes it has moved, added to 8 times its targeting (formerly stabilizer) rating, and then subtracted from a base of 66. Put simply, a good fire control rating is needed to hit moving targets, while the ability to coordinate movement, turret traverse and crew activities (and an actual gun stabilizer - rare in World War II) are essential for accurate shooting when the firing unit is moving. Note that in the "several minutes" a turn represents, it is rare for units to actually be shooting while travelling forward at any great speed. The assumption is that for most part units are shooting form the "short halt". Russians tended to be poor at this and are typically penalized one targeting rating because of this.

  These are the targeting ratings in the game (they use the OOB editor "stab" characteristic)

  Stab 0 = SP AT guns like Archer and Marder that were not very good at shooting from the "march".

  Stab 1 = SP guns and tanks with slow 2 man turrets or 1 man turrets

  Stab 2 = tanks with 2 man turrets or slow turrets

  Stab 3 = "normal" tanks with 3 man turret crews.

  Stab 4 = a very few late war weapons

- ***Experience.*** Hit probability is multiplied by experience/65.

- ***Rangefinders.*** A high rangefinder value is vital for long-range shots. This value +1 is multiplied times 6, 8, 10 and 12 for a series of "range bands" where a penalty of times .67, .5, .33 and .25 kick in. For instance a tank with a rangefinder value of 2 (effectively 3) has a normal hit chance out to 18 hexes (900yrds). At 900-1200 yards, it's times .67, at 1200 – 1500 times .5, at 1500-1800 times .33 and beyond 1800 yards, .25. If the rangefinder value is greater than 12, it actually improves the accuracy of the first shot (or rather mitigates the penalty against initial shots).

Target Acquisition

Accuracy will vary greatly because of a multitude of factors, such as whether the firing unit or target is moving. But repeated fire at a target improves the chances of a hit. The first shot that a unit fires at a target suffers a 40% penalty on the percentage chance to hit. The second shot receives a 20% penalty, while the hit probability is normal for the third shot. Infantry weapons "range in" faster, so the 1st shot penalty is 80% if a "primary infantry" weapon.

Movement and Shooting

A unit that moves will lose shots, and any shots it does fire will be much less accurate. Similarly, a unit that fires loses movement points. Having a stabilizer on a gun will keep it from losing as

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many shots when moving.

Opportunity Fire (OpFire)

An IGO-UGO system has the problem of “turns” that do not exist on a real battlefield. Games tend to two extremes. Plotted movement with simultaneous execution is at one extreme assuming near perfect synchronization of forces in time and space – all units moving proportionally according to speed to the stroke of a master metronome. IGO-UGO goes to the other extreme of perfectly asynchronous movement, each unit moves in series, often completing its turn before any other units move. Reality is in the middle and both systems have their troubles. To deal with the problem of the enemy being “frozen” when its not their turn, IGO_UGO systems usually use the concept of opportunity fire, or allowing certain trigger actions to allow the “frozen” player’s units to shoot when its not their turn. In SP:WaW these triggers are:

- Moving in the LOS of the enemy
- Shooting at him
- Moving within 2 hexes of the enemy

When these events occur there is a chance based on experience, ROF and range that an Opportunity fire will be triggered.

Now the concept of “shots” regulating the number of times the player can fire compounds this problem of “asynchronization” because enemy units can “sucker” a defender into expending all their shots early in the turn, leaving it defenseless. Now in SP:WaW we assume that even if a unit completes its turn and causes an enemy to expend all its opfire shots additional friendly actions often “should have” occurred very closely in time with it. So we have put “special opfire” into the game. Special OpFire is opfire triggered when an enemy has no shots remaining – in effect “bonus fire”. Since each turn represents several minutes, even heavy tanks with rates of fire of 6 or 8 rounds per minute are capable of 12 or 18 shots in a turn if the enemy provides a “target rich environment”.

So if you are in a situation where you bump into the enemy close up, the game assumes some simultaneity where you are not necessarily "really" moving your units one at a time. So just becasue the first unit moves up and makes the defender opfire his "wad", that doesn't mean that you are free to waltze all his platoon mates up and do the defender in! Since the defender doesn't get a chance to rally during the turn, the key is to shoot a lot to suppress him and make those opfire shoots a nuisance (and waste of his ammo). It also forces better combined arms interaction. Couple this with the Opfire Confirm option and both players will find themselves fully engaged throughout both halves of the turn!

The idea is that you are likely to get shot at, at least as often as you shoot if you close with the enemy at short range. If you have supporting troops (direct fire HE or MGs in particular) softening up the position before you assault, you will do much better becasue those opfire shots will be quite poor (half the units suppression/100 is mutiplied time the hit chance).

Close Assault

Vehicles that move adjacent to infantry may be close assaulted by the foot soldiers (who are climbing on top of the tank, dropping grenades down its hatches, etc.) The minimum chance for close assault uses a formula that uses the number of men assaulting. So, for example, a 10-man squad has a base 10% chance. If infantry are riding on a vehicle when it is close assaulted by enemy infantry, the infantry may absorb or abort the assault. You’ll lose infantry, but this will keep your tanks alive.

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If the close assault works, the assaulting infantry will suffer a small amount of suppression, and the target will be immobilized or destroyed. If the infantry assaults, but the vehicle successfully defends itself, the infantry unit will be left suppressed and may take casualties. If the assaulting units fail their experience check the vehicle is considered to have repulsed the attack right off, and the infantry will suffer a huge amount of suppression. Assaulting tanks is not for the faint of heart.

Units with anti-tank weapons, flame-throwers, satchel charges or Molotov cocktails will have a much better chance of close assaulting. Units in cover or entrenched have their assault chances increased by 33%, while units that moved or have unloaded have their chances halved.

Tank Machine guns

Though tanks were usually equipped with machine guns, they tended to use those weapons only at close ranges. Therefore vehicle crews must pass an experience check to fire their machine guns farther than six hexes, unless the vehicle is tank with a main gun that is damaged or has been rendered inactive to save ammunition. This also represents the difficulty in having crewmembers load the main gun while firing the coaxial machine guns and coordinating the fire of the bow gunner. The result is sometimes all the MGS on a tank will fire, other times only the main gun will. This is not a bug, just the fact that it is a difficult fire coordination problem.

Pulling Back

Sometimes when infantry under fire will retreat. If so, the message “Pulling Back” is displayed. If infantry have smoke grenades, they will fire it automatically in an attempt to cover their retreat. Transport vehicles (trucks and half-tracks) will often withdraw if armored vehicles approach.

Hull-down

Designer’s Note: A Top Ten rule for a tank to survive on the battlefield is to be hull-down. This means that the hull is protected (behind a stone wall, the crest of a hill, etc.) while the turret is free to fire. A hull-down position allows a tank to shoot while making itself a much smaller and less exposed target. Hull Down status is a bit abstracted, as it should be based on the direction the fire is coming, not just where the front is pointed. Nonetheless, the following rule captures the flavor of tanks being in “improved positions”.

Vehicles that are hull-down are harder to hit and can only be hit on their turrets.

Vehicles are considered hull-down if they are aren’t stationary and are in:

- A Rough or Stone Building hex or,
- “In-Cover” or,
- A hex that is higher in elevation than the hex containing the unit firing at them, or
- In an entrenchment hex and are being fired on from the front.

Vehicles that are hull-down have their size divided by 4 for hit chance purposes, and can only be hit in the turret.

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Terrain Effects on Movement and Combat

Terrain Type	Foot Movement	Wheel Movement	4 Wheel Movement	Track Movement	Defense	Notes
Clear	2	3	2	2	Poor	
Pavement	2	3	2	2	Poor	
Gravel	2	3	2	2	Poor	
Dirt	2	3	2	2	Poor	
Cobblestone	2	3	2	2	Poor	
Sand	2	3	2	2	Poor	
Mud	3	8	6	4	Very Poor	Break down roll
Swamp	3	12	9	6	Very Poor	Break down roll
Paved Road	2	1	1	1	Very Poor	Break down roll
Dirt Road	2	2	1	1	Poor	Break down roll
Trail	2	3	2	2	Poor	Break down roll
Rough	3	15	12	9	Excellent	
High Grass	2	3	2	2	Poor	
Slopes	2	4	3	2	Good	
Cliffs	14	NA	NA	NA	Very, Very Poor	Special Forces only
Rocks	3	NA	NA	12	Excellent	
Boulders	3	NA	NA	NA	Very Good	
Streams	6	12	9	6	Good	Break down roll
Canals	3	12	9	6	Good	Break down roll
Rivers	NA	NA	1	1	Poor	Amphib/boats only
Coral Reef	3	8	6	4	Poor	Break down roll
Shallow water	3	8	6	4	Poor	Break down roll
Water	NA	NA	1	1	Poor	Amphib/boats only
Deep Water	NA	NA	1	1	Poor	Amphib/boats only
Snow/Rain/Sandstorm	(+1)	(+1)	(+1)	(+1)	Poor	
Bocage	9	NA	NA	18	Good	Bottom hits possible
Sandstone walls	3	NA	NA	6	Good	Break down roll
Stone walls	3	NA	NA	6	Good	Break down roll
Trees	(+1)	(+1)	(+1)	(+1)	Good	
Wood Buildings	2	NA	NA	8	Very Good	Break down roll
Stone Buildings	2	NA	NA	12	Excellent	Break down roll
Multi hex buildings	2	NA	NA	12	Excellent	Break down roll
Trenches	3	12	9	6	Very Good	Break down roll
Gullies	3	12	9	6	Very Good	Break down roll
Crops	2	4	2	2	Fair	
Plowed Fields	2	4	2	2	Fair	
Vineyards	2	4	2	2	Fair	
Orchards	2	3	2	2	Good	
Wood Bridges	2	1	1	1	Poor	Stacking limit
Stone Bridges	2	1	1	1	Very Poor	Stacking limit
Rice paddies	2	4	2	2	Poor	Break down roll
Polders	3	12	9	6	Poor	Break down roll
Graveyards	2	3	2	2	Fair	

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Marsh	3	12	9	6	Very Poor	Break down roll

Vehicles also are harder to hit with direct fire if they are in a building or rubble hex, wall, bocage or a hex with trees.

Infantry and guns are harder to hit if they are:

- Entrenched or in a stone buildings or rough hex (this is the best cover)
- “In-Cover”
- In a building or a hex with trees.
- In a shell hole (least amount of cover).
- Pinned (they’re taking cover).

Indirect fire at units in stone buildings or rough hexes inflicts 50% of the normal casualties.

Movement Effects on Combat

Vehicles that are moving are harder to hit and the faster they are moving the harder it is to hit them. Generally it is much harder for a moving unit to score a hit on a stationary target than it is for a stationary unit to hit a moving target. Infantry that are stationary are considered prone. Infantry that have moved only one hex in a turn are considered to be moving cautiously and are only slightly easier to hit than prone infantry. Infantry that moves more than one hex in a turn is much easier to hit.

The effect on accuracy of moving depends on whether you are the target or shooter. In both cases the effect increases with the amount of movement. The modifier for the target is based on hexes moved times three, then subtracted from a base of 70 and 6* hexes moved subtracted from a base of 66 for firing unit movement. 3 times the fire control rating is added to the former and 8 times the targeting rating added to the latter.

Infantry Facing

Note that while facing affects a vehicle’s ability to fire (turret less vehicles can only shoot from the front) and which part of their armor is hit, facing does not affect infantry as much. Infantry see better in the direction they’re facing, while engineers must face a hex to remove obstacles or plant mines in it.

Combat Results

"Strength lies not in defense but in attack." -- Adolf Hitler

Hits on vehicles can destroy them outright, though sometimes all or some of their crews will escape. Vehicles can also suffer damage to a variety of their components, such as their tracks and suspension (which either halves movement or immobilizes the vehicle) and guns. Infantry casualties are tracked individually. Note that personnel casualties don’t just reflect wounded men, but also soldiers who have been so dazed or confused that they are useless for the rest of the battle. Thus a unit showing 3 men effective may have more present, they just aren’t effectively

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contributing to the fighting.

Enemy fire – even if it inflicts no damage – will inflict suppression points. Once suppression reaches a high enough level in relation to morale,) units will be pinned, or will retreat or rout. Even if the unit maintains its morale, accuracy will be reduced by suppression divided by 2.Moral of the story: keeping the enemy's head down will limit the amount of fire headed your way.

Suppression is removed by rallying. Each successful rally reduces your suppression by one half. So if a unit has 99 suppression, its first rally will reduce it to 48, the next to 24, the third to 12 and then 6, 3 and 1. Suppression is also given or removed at the end of the turn, depending on the proximity of friendly units, headquarters, hidden status and proximity of enemies.

Buttoned-up

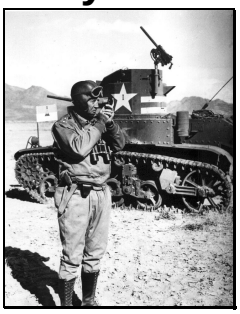
Even if incoming fire doesn't damage a tank, it may force the crew to button-up (close the hatches). The crew then can only see a narrow slice of the world through the vehicle's periscopes, which means that their sighting and accuracy abilities go down. Many vehicles are equipped with anti-aircraft machine guns, which can only be used if the vehicle is unbuttoned.

Bailout

Vehicle crews now check morale when serious damage is done to their vehicle, or they think serious damage has been done. If they fail, they bail out immediately. Bailed-out vehicle crews, or gun crews who abandon their artillery pieces, may rejoin them once their morale improves and they occupy the same hex. Hold the shift key down when you click on a hex to move into it.

In addition, players may order crews to voluntarily bail out (to save an experienced crew in a bad situation) by pressing the "9" key.

Rally



Units which suffer suppression, or which retreat or rout, can be rallied by friendly leaders. Each successful rally reduces suppression by half. A leader may continue to rally a unit until he fails. The process starts with the lowest-ranking leader. Once he fails to rally a unit, then the leader above him gets a chanceYou may never attempt to rally if the suppression is less than 2.

There are four types of ranked leaders:

- The Overall Commander — Can rally any unit as long as he is in contact (by radio or physically within 3 hexes)

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- The Company Commander — Can rally any unit as long as he is in contact (by radio or within 3 hexes).

- The Formation Leader — Can rally a unit in his formation as long as he is in contact (by radio or within 3 hexes) Formation leaders are in the '0' unit of the formation, such as A0, B0, and so on.

- The Unit Leader — Can attempt to rally the men in his single unit.

If units have radios, then leaders may assist via radio. If units don't have radios, they must be within 3 hexes in order for that leader to assist in rallying the troops.

Note: Units automatically attempt to rally at the end of each turn. You may still want to Rally units during your turn in order to have them see, move, and shoot more effectively if they are suffering from suppression. When manually rallying your troops, don't forget to keep clicking on the Rally button until you get the message stating that Unit X is unable to be rallied. At that point, the Rally button should turn gray. Units which have spotted enemy units will recieve zero, 1, or 2 suppression points at the end of each turn, or can have up to 3 points removed. If they are hidden, or near an HQ tent, even more suppression will be removed over and above that removed for rallying. These end of turn adjustments ar the only way a unit can return to zero suppression and enjoy the benefit ot accuracy that unsuppressed units enjoy.

Armor Damage

Designer's Note: Since the invention of the tank, there's been a race between the irresistible power of the cannon shell and the immovable hardness of armor plate. Even today, who wins depends on many things. A small armor-piercing round might just barely penetrate an armored hull, and then send a hot splinter into the ammo storage. Then again, it could rattle around the hull and do nothing. On the other hand, a large AP round hitting a very soft target – such as a truck – might punch its way in and punch its way out without exploding (it actually happened). Modern man has turned war into a science – but he will never totally eliminate luck.

SPWAW uses a sophisticated model to determine whether shells fired at armored targets, such as tanks, actually penetrate and damage the target. First, if a round hits a target, the game checks to see whether the round ricochets. If it does ricochet, then it is considered a non-penetrating hit. This could still damage the target if the shell is big enough.

If it doesn't ricochet, then the penetration value of the shell is compared to the target's effective armor rating, which is a combination of the thickness and the slope of its armor (sloped armor is better defensively). If the penetration value is less, the round is non-penetrating. If it's greater, then it inflicts damage on the vehicle depending on how much greater the penetration is versus the target's armor rating.

Even if there is penetration, the damage, if any, will depend on several factors such as the size of the shell, as well as the size and the survivability rating of the target vehicle. This data is used to create a damage check that is assessed against every system and crewman on the vehicle.

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Indirect Fire

Artillery is the god of war – Stalin

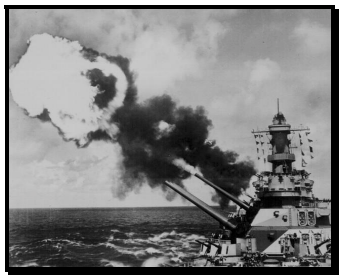
Designer's Notes *– What inflicted the bulk of the battlefield casualties in World War II? Armor and infantry might consider themselves the premier combat arms, but it was the artillery that caused the most damage. A wise SPWAW commander will ensure that his force is equipped with plenty of artillery. However, the big guns in SP: WAW are frequently off the map, and need to have their fire called in by radio-equipped spotters. This takes time, and those who would win their battles must carefully ensure that the shells land where they're supposed to and when they're supposed to. But as with the best laid plans…sometimes "you know what" happens.*

Artillery effects in SPWAW 4.1 have been greatly enhanced by making it possible for rounds to casue suppression and casualties in adjacent hexes. Artillery is now much more an "area effect" weapon that will blanket an area with a good amount of suppression and distribute casualties throughout, not just in the specific hexes the rounds land in. Bombs from aircraft work in a similar fashion and can cause suppression up to 2 hexes away. Artillery will also suppress vehicles, so tanks, while difficult to destroy with artillery, can suffer enough confusion and loss of command control that a formation of tanks will not be able to function effectively while artillery "fires for effect" amongst its units.

Two new preference adjustments, Artillery vs Hard and vs Soft targets, will increase or decrease the casualties suffered by the different target types.. Note that casualties to troops in forts is adjusted by the "vs Soft" selection, while the chance of hitting the fort itself is adjusted with "vs Hard". Also. the setting affects the artillery of the side whose dial you change, so lowering Player 1's arty vs Soft to 60 will make Player 2's infantry more survivable in artillery barrages. Suppression caused by artillery is not affected. If you think too much suppression is done, you can adjust the "rout/Rally" dial.

As effective as they can be, artillery is a difficult thing to coordinate, and often either do to communications failures, legitimate reassingments or legendary "SNAFUs" artillery won't be available exactly when you want it. The spotter must be in cmmunications with the battery and have a valid "battery access" to call for fire. Note the if you lose contact do to battery access failure, you will not be able to call in a new fire mission, but can adjust one that is in progress, despite the button being greyed out. Try the "shift fire" button when in doubt.

Indirect Fire Missions



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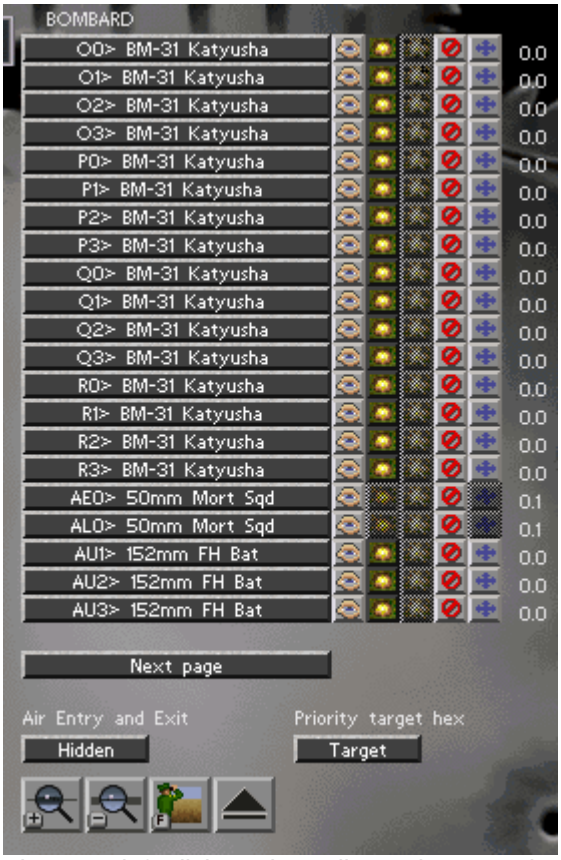

When you left-click on the Indirect Fire Menu button, or press the “B” key, the Indirect Fire menu appears. Every unit that can be assigned to perform an Indirect Fire mission is listed here alpha-numerically. Left clicking on the unit name shifts the view on the Map Screen to the currently targeted hex of that unit. If the unit has no target selected, the view does not change. The availability of off board units is random. Radio communication was somewhat unreliable in the Second World War, and batteries often responded to calls for fire from a number of “customers. Batteries onboard are assumed to be dedicated to your command and will respond quicker.

Selecting a Target

Selecting a hex to be bombarded is a simple two-step process. Left-click on the hex to be attacked; the standard red hex outline appears. Now, left-click on the button for the type of ordnance you wish to use, HE or smoke. The hex changes to show the “Targeted” icon. The number at the right end of the line of buttons indicates how many turns before the fire arrives. Following each unit’s listing are six buttons that control that unit.

- ***View Unit***: Left-clicking this button displays the Unit Command screen for the unit.
- ***High Explosive***: This button orders a barrage of High Explosive rounds on the target hex.
- ***Smoke***: This button orders Smoke rounds to be fired at the target hex.
- ***Cancel***: Left-clicking this button cancels the unit’s current fire mission.
- ***Shift***: This button allows a fire mission that has not yet been delivered, or that is arriving on multiple turns to be shifted. Left-clicking this button displays the target hex outlined in red, and a larger red circle. Left clicking in any hex wholly within the circle causes the unit to change targeting to that hex. To cancel, click on the Shift button again. Id you have lost battery access, but are still in communications, you will be able to shift an existing fire

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mission despite the HE button being grayed out.

- ***Time on Target***: This indicates the delay before the barrage or aircraft arrives. The delay length is the number of turns it takes the artillery to get a fix on the target, fire the shells, and for the shells to strike. For example, a 0 means the unit can fire at the end of the current turn, and a 1 means the unit cannot fire until the end of the next turn and so on. A barrage arrives in the vicinity of the target at the end of your turn, from 0 to several turns later, depending on the type of Indirect Fire requested and quality of the crew in question. Frequently, the arrival time is expressed as a number plus some decimal fraction, for example, 1.3. This means that the Indirect Fire is going to arrive over two turns, with three quarters arriving one phase and the other quarter arriving in the next. A delay of 0.2 or less will arrive in the current turn, 0.3to .5 will fall in the next and 1.0 or higher a whole turn (two fire phases) later.

Spotting

The accuracy of indirect fire will depend greatly on the Artillery skill rating of the unit calling in the bombardment, as well as whether the spotter can actually see the target hex. Unobserved fire will tend to scatter outside the target hex and will be less effective in general. Forward Observer units usually are the best for calling in fire. Note that if the target is unobserved, even if the rounds appear to be landing in the correct hex, you don't know exactly where they are landing. So even if the fire appears accurate, it may not be doing any real damage.

Pressing the "F" key or left-clicking on the Current/Spotter Unit button jumps the view to the unit acting as a spotter. You can also zoom the view with the Zoom buttons, and return to the Tactical Screen with the Exit button. Note that with Command and Control on, a Forward Observer can only direct the fire of a number of units equal to his remaining orders.

Pre-registered Targets

In many situations that seemed desperate, the artillery has been a most vital factor.
-- Gen Douglas MacArthur

Using fast response artillery (i.e. mortars and light guns onboard) will reduce the delay before a bombardment hits. But in general, the best way to get a barrage in quickly is to pre-register targets before the game begins. During the initial set-up, click on the Bombardment button. You'll see a bar marked "Target." under the words "Priority Target Hex" Click on a hex, and then click the "Target" button. You'll then see a number appear in the hex shown in the Indirect Fire Menu. The hex is now pre-registered, which means virtually no delay for a barrage on those coordinates. The number of pre-registered targets will vary with the type of scenario, with Assault scenarios allowing the most targets. The number of pre-registered targets you can set varies with the type of scenario.

Light Mortars

All light mortars are coded as dedicated artillery, which means they can be used for indirect fire. However, when attached to a platoon, only the platoon headquarters can call for and adjust their fire. It is advisable to attach these mortars directly to the line infantry platoon they will be supporting, so they can be used most flexibly

Shell Holes

Use enough artillery, and the map begins to resemble the surface of the moon. Heavier shells are more likely to dig shell holes. . These can be used for cover by infantry units.

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Spotters and Unspotted Indirect Fire

Any unit with a radio may attempt to call in an indirect fire (bombardment) mission if it has a Higher HQ Command Link or if it is in Command Link with its HQ that has a Higher HQ Command Link. An artillery unit must have a Higher HQ Command Link, or a Command Link with its HQ that has a Higher HQ Command Link in order to be available to fire a bombardment mission. In addition, when using the command control rules, spotters must have available orders to expend to plot a bombardment mission

Indirect fire plotted on a hex that is not visible to the observer unit that requested the bombardment mission at the time the mission arrives can scatter several hexes from the intended target. In addition, casualties from unobserved indirect fire are reduced to 50%.

Spotting Off-map Artillery and Counter-battery Fire

There is a chance, varying with each nationality, that unspotted enemy artillery will be detected using flash-and-sound techniques. There is also a chance that friendly off-board artillery will automatically fire at enemy off-board batteries. Leaving batteries unassigned will greatly improve the chance that they will counter-battery fire.

Air Support

"If, in spite of enemy's air superiority, we succeed in getting a large part of our mobile force into action in the threatened coast defense sectors in the first hours, I am convinced that the enemy attack on the coast will collapse completely on its first day."
-- Field Marshall Erwin Rommel

Calling for air strikes is handled much the same way as an artillery fire mission. except that aircraft must enter and leave the map at specific places. These entry and exit positions must be assigned before targets are chosen. Bombs are now fearsome weapons that are difficult to land on a target, but will cause a great amount of suppression to a troop concentration.

Aircraft Entry, Exit Spaces and Target Hexes

Left-click on the Indirect Fire Menu button, or press **"**B" on the keyboard, and the Indirect Fire screen appears. Next to the Strategic Map are four standard buttons, Zoom In, Zoom Out, Find Spotter and Exit. There is also a button next to the legend "Air Unit Entry and Exit" which reads

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Hidden. Left-click on this button to change it to read Displayed. This changes the Overall map to show six pairs of arrows pointing onto and off of the map. These denote the entry and exit spaces for air support. Left-click on an inward pointing arrow button, to assign an entry space, then left-click on an outward pointing arrow to select an exit space. Select a target hex by left clicking on it, and then left-click on the HE button. The hex changes to show the “Targeted” icon. The number at the right end of the unit row indicates how many turns before the aircraft arrives.

Aircraft

Aircraft may return to base and become unavailable during a game for several reasons. Whenever a plane is damaged, it returns to base. Otherwise, aircraft always continue to fly until they use up their heavy ordinance (bombs and rockets). When aircraft use up their entire heavy ordinance there is a chance they will return to base. If the plane is not a designated Ground Support Specialist, it must also pass a morale check in order for the plane not to return to base. The following planes are Ground Support Specialists and do not need to pass a morale check to continue flying are the Ju-87g, Hs-129, IL-2 Shturmovik, P-39 Airacobra, B-25h Mitchell, IL-10 Shturmovik. These units are indicated by a “1” armor rating the in the Top Armor category.

Note that if you use your planes to attack enemy positions when there is a lot of smoke in the air or too close to your own units, your aircraft may attack friendly troops.

Flak, if armed with an anti-aircraft type weapon, has advantages firing at aircraft.

Gliders and Paratroops

GLIDERS
C0> WACO Troop ETA 0
C1> WACO Troop ETA 0
C2> WACO Troop ETA 0
C3> WACO Troop ETA 0
D0> WACO Troop ETA 0
D1> WACO Troop ETA 0
D2> WACO Troop ETA 0
D3> WACO Troop ETA 0

PARATROOPER DROPS
D0> JU-52 Troop ETA 0
D1> JU-52 Troop ETA 0
D2> JU-52 Troop ETA 0
D3> JU-52 Troop ETA 0
E0> JU-52 Troop ETA 0
E1> JU-52 Troop ETA 0
E2> JU-52 Troop ETA 0
E3> JU-52 Troop ETA 0

Gliders will enter like attack aircraft and land on the map. Cargo aircraft will drop paratroops

Paratroops and Gliders unit may be assigned landing hexes during deployment. Click the Paratroop or Glider assignment button. This will evoke a pop-out screen that has a list of all eligible units, similar to the artillery assignment screen. Select the desired unit click on the map, at the desired location. Enter the turn number for arrival. The hot key, ‘t’ in the assignment screen will evoke a query, in which the player will type in the turn number. Each unit may be assigned a

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separate turn in which to arrive. During the game, the unit will arrive at that location much as would a reinforcement.

Special Forces and Guerrillas

Special forces and guerrillas have the ability to infiltrate. They may be assigned hexes that they will appear near later (if at all) in a game. The time is based on the distance from the start line, the enemy forces in the area and some luck. Be warned that sometimes they don't make it (about 60-70%of the time they do).

Special Forces and Guerilla unit may be assigned infiltration hexes during deployment. Click the Infiltration button. This will evoke a pop-out screen that has a list of all eligible units, similar to the artillery assignment screen. Select the desired unit click on the map, at the desired location. During the game, the unit will arrive at that location much as would a reinforcement. Since the location may be behind enemy lines, the turn upon which it arrives will be unpredictable. Generally, the further from the friendly start lines, the longer it will take for the units to arrive. The experience level and leadership skills of the unit leader will reduce this length of time. There is a chance that the unit will be totally unable to infiltrate and will not appear during the battle. In campaign games, these lost units will once again be available in the next battle.

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Command Control and Orders

"The history of war does not know of an undertaking comparable to it for breadth of conception, grandeur of scale, and mastery of execution." --Joseph Stalin

Designer's Note: *Napoleon said that morale is three times more important than numbers. Of course, only a moron- or a Napoleon-sized ego - would believe that it's good to be outnumbered. But Napoleon's point was that a smaller army with better morale could trounce a larger force with poor morale.*

Similarly, a well-organized force can defeat a larger but clumsier opponent. The Germans didn't have better tanks than their opponents at the beginning of World War II. But their tanks were equipped with radios, and their commanders were top-notch, which allowed them to make better use of what they had. The Allies suffered defeat after defeat until they, too, learned. Players will find that high quality, veteran troops will have the flexibility to carry out their missions even when events don't go according to plan on the battlefield.

The SPWAW Command and Control system is not intended to be a realistic simulation of command in the Second World War, but it is intended to force a player to do three things:

1. *Think ahead. You have to think through a plan about where you what your troops to be at least a couple of turns in advance. If you change your mind in the middle of a battle, you may find your troops unable to comply with your new orders.*

2. *Maneuver by platoon. You are typically a battalion or regimental commander, commanding several companies whose basic maneuver element is the platoon. SP: WAW units may be squads and individual vehicles, but players need to think in terms of maneuvering platoons.*

3. *Pay attention to stance. Troops can be either advancing or defensively seeking cover. Alternating platoons from supporting positions "in cover" with those carefully advancing will greatly reduce casualties.*

Certain actions performed by units in the game require the use of "orders." In general, orders are needed to call in artillery and to order friendly units to deviate from pre-assigned objectives. Key to this are the formation commanders or "HQ" units. These are identified easily by the parentheses (i.e. (+) or (8) around the unit formation pip, or troop indicator). As the formation takes casualties, the new HQ unit will be identified in this way, making it easier to determine who are the important command units.

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Command and control is easy to use if you remember the three things outlined above:

- Have a scheme of maneuver – this is implemented using objectives. The most common mistake is "just moving the troops" without assigning an objective. You will always be running out of orders and get very frustrated!

- Keep you platoons together, if possible all within 3 hexes of the HQ. That will maximize unit cohesion advantages to morale and suppression recovery and ensure they remain in contact with the HQ. When moving always move the HQ LAST so you don't leave a unit out of command and control

- Use stance appropriately. Advance in bounds by formation with one formation coving the advance of another from a defend stance. This will maximize OpFire opportunities and give defending units the opportunity to get "in cover".

Orders

Orders are the "currency" of C2 in the game. They are "spent" to assign objectives, move units independently, change stance, and call for fire. Each formation leader has a certain number of orders that a unit in its formation may use if the unit is in contact with its leader. A unit may also use the orders from a higher HQ if it has contact with the higher HQ either directly or through indirect contact through its formation HQ. The Orders available to a unit are listed next to "Orders" on the unit data area of the screen along with the unit currently commanding the unit. If the letter is the unit's formation letter, then the unit is currently using its own formations orders. If all those orders are used, it then requests orders form the next higher HQ it is in contact with.

Always be aware of what HQ a formation is currently receiving orders from, or you may find your senior leaders out of orders for calling for fire, or other necessities! Also be aware that if you don't have sufficient orders to pay for an expensive task (like issue a new formation objective) you can perform a cheaper action that gets you down to 0 and then you will access the A0's orders.

For example, assume there is a battalion formation with B0 as the Command unit and units C0, C1, C2 and C3 as a company formation belonging to B0's battalion. Unit C1 could use the orders of unit C0 if it is in contact with C0. If it is in contact with B0, or if it has contact with C0 and C0 has contact with B0 and has expended its orders, it could use the orders of B0. If it is in contact with A0, or if it is in contact with C0 that is in contact with A0 either directly or indirectly through B0, then it may use the orders of A0 if both B0 and C0 are tapped out.

When a unit is active, it determines which HQ it thinks it should obtain its orders from at that moment, and that HQ's letter designation and the number of orders the HQ has available is displayed in parenthesis next to the word "ORDERS" at the bottom of the screen in the unit data area. If a unit has multiple HQ's it can draw orders from, the selected HQ can change during the turn as orders are expended. Thus, if unit B2 wants to request an artillery barrage, but its headquarters B0 has no orders left it might still expend orders from the next-highest headquarters (A0).

At the beginning of each turn each leader has a chance to gain new orders. Some unused orders may also be carried over from the previous turn, based on the leader's rank.

Note that reconnaissance units do not use orders for movement. However, they are affected normally by their stance setting, when the Control option is "On." Clicking again on recon units with a "sector" movement arc, will expand it to 360 degrees (this costs no orders and is just a quirk)

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Gaining Orders

At the start of each turn leaders may receive new orders. The number of new orders a leader receives ranges from 1 to 10. Every leader receives a minimum of one new order per turn. The number of orders allotted is based on the leader's command rating and the nationality's command rating based on the formula:

(Command Rating + (A Random Number From 0 To 9) -40 + Nationality Command Rating) /10

Leaders may also retain unused orders from the previous turn and add them to the newly received orders. The maximum number of unused orders a leader may retain is determined by the leader's rank:

Private	**0**	**Corporal**	**0**
Sergeant	**1**	**2nd Lt.**	**1**
1st Lt.	**1**	**Captain**	**2**
Major	**2**	**Lt. Col.**	**2**
Co	**3**	**General**	**3**

The total number of orders a leader may have available at the start of a turn is equal to his retained orders plus his newly received orders.

Adverse Morale States

After the number of available orders has been calculated this number may be reduced if the leader's unit is in an adverse morale state:

Buttoned	**Orders halved**
Pinned	**Orders halved**
Retreating	**Orders reduced to zero**
Routed	**Orders reduced to zero**

Unit Stance

Each unit in the game may be assigned either an Advance or Defend stance. Units assigned an Advance stance that are not suffering from one of the adverse morale states listed previously, may be moved or fired by the owning player. Units assigned a Defend stance may fire but may not move except as a result of combat. They will attempt to find cover in the hex they are in if they are infantry, infantry weapons teams, or vehicles (gun units cannot dig in), and they do not fire during the turn. Turn a units weapon off if want to ensure it makes a check to get in cover.

If a unit with a Defend stance is forced to retreat, it changes its stance to Advance. The number of turns it takes to find cover is based on the experience of the unit and its suppression level and can be sped up by adjacent engineer units. It usually takes several turns to reach a dug-in state.

Units in Defend stance are now 33% or so more likely than advancing units to receive "special Opfire" when they are otherwise out of shots. "Special" OpFire works on 3 triggers: general movement - spend lots of timein the guys LOS and you will have a good chance of a "special opfire shot" even at significant range; firefights - if you shoot at an enemy, there is a good chance it will shoot back; close approach - if you close inside of 2 hexes there is a good chance the enemy will take a pot shot.

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Formation Movement Objectives

Formations should always be assigned movement objectives. Whenever a new objective is selected for a formation, units then in contact (physically or by radio) with the formation HQ are given the new objective. Units not then in contact are not given the new objective but will receive the new objective whenever they begin a turn in contact with their HQ. Objectives can not only be given for the entire formation, but units within a formation may have different objectives depending on whether they are in contact with their HQ as new objectives are selected.

To give a formation a movement order, click on the formation HQ, or another unit in the formation that is “in contact” and then the “red flag”. The screen will shift to assign objective mode and you can click where you want the formation objective. Be careful with units that are “out of contact” as they can sometimes link to the Company HQ or A0 and get a movement objective “out of synch” with the rest of the formation. This is good if you want to send the unit out on an “independent” mission, but can lead to confusion if you think you are setting an objective for a formation and aren’t!

Units with an Advance stance may move toward their formation’s movement objective without their leader expending any orders. Only hexes the unit can reach without expending orders are highlighted, although the unit may be able to move to other non-highlighted hexes by expending orders as long as the player is not in all-formation mode. A unit that attempts to move in a direction that is not toward its formation objective requires a leader in the chain of command to spend one or more orders. If a unit does not have access to any orders, it can only move to highlighted hexes. Units with a Defend stance may be given movement objectives, but may not move until they have changed their stance to Advance.

Unit Actions That Require A Leader to Spend Orders

Certain unit actions require a leader in the chain of command that is in physical or radio contact with the unit, to expend one or more orders. If none of the leaders in the chain have the required orders then those actions may not be performed. Listed below are the orders costs for each type of action:

- Single unit movement - not toward objective – 1 point if in physical contact with HQ, 2 points if in radio contact
- Request an indirect fire bombardment (per artillery unit) – 1 point
- Change formation movement objective - 3 points
- Change mission - single unit - 1 point if in physical contact with HQ, 2 points if in radio contact
- Change mission - all units in formation - 3 points

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Entrenchment

Entrenchment vs. ”In – Cover”

All units gain defensive benefits from sandbag and foxhole entrenchments that are placed at the beginning of a game. Entrenchments are never removed from the map and can provide cover for any unit that remains stationary in the hex.

If the Command Control option is turned on, units in “Defend” stance will attempt to get in-cover if stationary, unsuppressed, and not fired on. When playing with the command control option off, all units that do not move in a turn attempt to get in-cover and build a temporary improved position. Engineer units speed up this process for units they are adjacent to. Once a unit is in-cover, the unit gains a defensive benefit for as long as the unit remains in the hex. Once the unit moves, the in-cover marker on the hex is removed from the map. An in-cover symbol only benefits the unit that “built” it. A vehicle unit that is in cover only derives a defensive benefit against fire directed at its front.

Mines

Mines may attack enemy and friendly units. The chance of an attack depends on the number of the mines placed in the hex. Note that mines aren’t automatically triggered every time a unit enters a hex, so it’s possible that a friendly unit may safely traverse a hex, only to have a follow-up unit suffer an attack.

Only infantry, mine clearing tanks, and combat engineers can remove mines. Engineers may be in an adjacent hex and facing the mined hex to do so, while Infantry *must* be in the mine hex to clear it. Mine removal is automatic at the end of the turn.

Dragons Teeth

Engineers have the ability to clear dragon teeth. They must be in the hex containing the obstacle or facing the obstacle from an adjacent hex and wait for a turn or more in order to remove them. Dragon teeth in a hex prevent vehicles from moving through the hex until engineers have removed them.

Mine-clearing tanks can clear mines. Engineer tanks can breach dragon’s teeth (as can leg engineers with a satchel charge).

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Barbed Wire

Barbed wire is treated like mines, except that it slows movement and does not cause casualties. Note that you may place mines, barbed wire and dragon teeth in the same hex. Placing barbed wire in the same hex with mines makes it a “known minefield,” revealing the presence of mines to the opposing player.

New Minefields

Leg engineers (not engineering vehicles) may lay new minefields during a battle. They must be facing the hex they to lay mines in, and the unit status display must be set to “lay mines in front of unit”

Ammunition

Guns will make us powerful, butter will only make us fat. -- Hermann Goering

If you play with the “Limited Ammo” option in the Preferences Screen turned on, units will carry a limited number of rounds. Generally, infantry will carry enough rifle ammo to last a scenario, but heavy infantry weapons such as bazookas will only come with a few rounds. As for tanks, those big guns carried by some heavy vehicles will seriously dent any metal or human targets they hit. Unfortunately, the bigger they are the less ammo they’re likely to carry, and a tank without ammo becomes just another large target.

Players may receive ammo trucks and dumps in scenarios, or they may purchase them in campaign game. These units provide ammunition resupply to units that are adjacent and not overly suppressed. The larger the caliber of the weapon on the unit being supplied, the slower the rate of resupply.

Ammo dumps are immobile units that can never move or be carried whose primary function is to resupply units in the hex with it. A unit in the same hex as the ammo dump that neither moves nor shoots for a turn and is not too suppressed is supplied with twice the amount of ammunition provided by an ammo truck.

HQ units can provide a morale benefit for all friendly units within five hexes. This automatically reduces some suppression at the end of a turn for units in range.

Order of Battle Editor

What you can’t edit within the game, the OOB Editor lets you change. Every piece of unit data can be modified using the OOB Editor. Some caution must be observed when changing values or the AI will be confused. The most important thing to remember is not to change the slot numbers the formations are in. The AI picks units based on these formation slots. You can add other formations (the AI won’t know they are there), but you have to be extremely careful changing the formation slots. While we have included features we thought were the bare minimum, Jim Bello has many more bells and whistles in his excellent editor that can be used with many other SP series games. It is shareware that is well worth supporting! Get it at http://users.erols.com/seawolf75/steelp/spobedit.html

The SPWAW editor will default to Order of Battle files in the folder it resides in. You can change to other folders files by choosing File and Change Directory An important note, when you go to leave an OOB and the editor asks you “DO YOU WANT TO SAVE?” it is only a warning. You must go back and choose File and Save yourself to actually perform the save!!!

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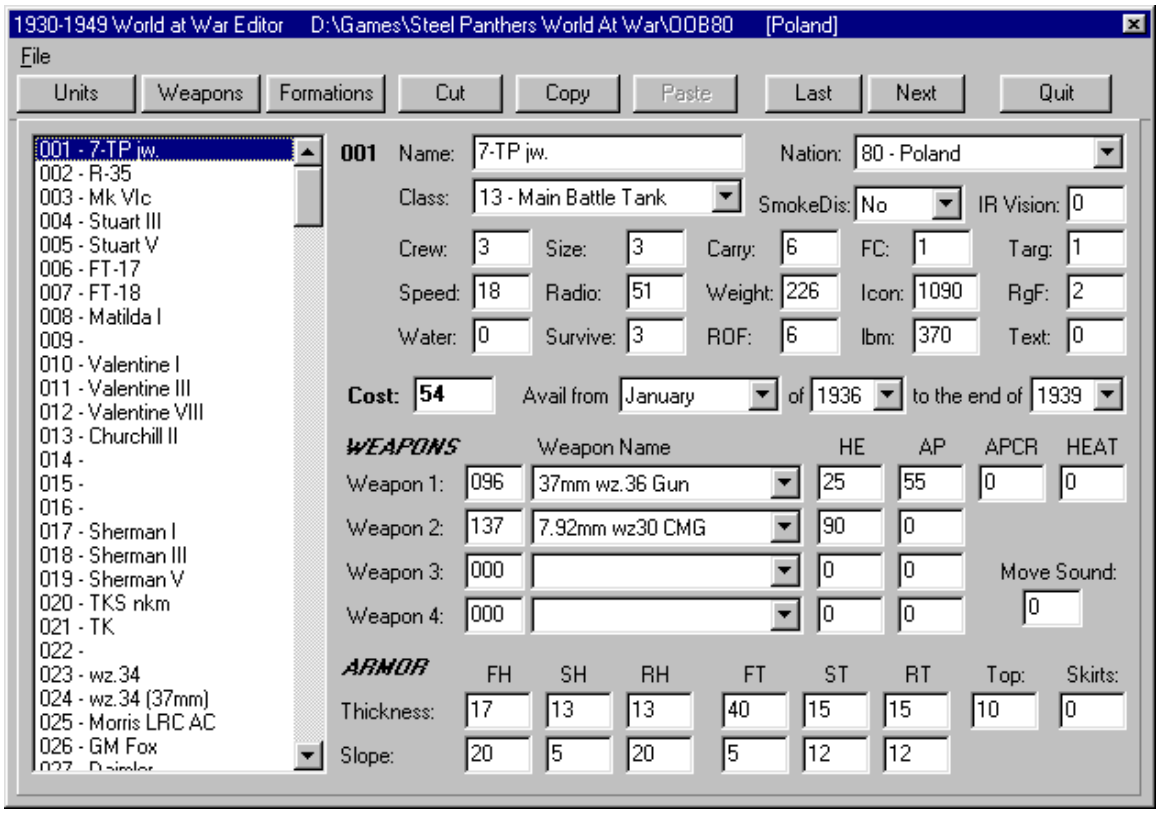
The Basics

Order of Battle files are numbered OOBXX with no file extension. Always zip them when sending them through the email as most email programs will append a .dat extension and possibly corrupt the contents. Always use a Zip program to send OOB files.

The File – Edit OOB selection brings up a list of files by number and country name. Choose the one you want and it will appear. The Unit list always appears first. There are actually three parts to the OOB database: Weapons, Units and Formations. Units are listed on the left-hand side and the unit characteristics are shown when a unit name is left-clicked in the unit list.



Weapons Data

Weapons are the first building block. A unit can have up to four weapons. Click on the Weapons button below the unit window to bring up the list of weapons. Note that there is a typo on the very first block – it should be Name, not Range. Other attributes are:

- Name – any fifteen characters describing the weapon
- Weapon class – Tells the code what sort of weapon it is. Do not use code 1, or 12-17 as it may cause code crashes. Some of the modern era code still works from Steel Panthers III, but most of it does not. So feel free to experiment, but be warned they may well malfunction or cause a crash.
- Prime Infantry Weapon – This is an important class as every trooper in the unit is assumed to have one and will fire it if they pass an experience check. Secondary infantry weapons are fired only once. If the unit has fewer than four men, weapons will “drop out’ starting with slot

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4. So don't give a two-man unit three weapons. The third one will never be used.

- Weapon size – This has some game effects for choosing default sounds and animations. A special flag of 222 means the weapon is capable of firing HE and AP at the same time (weapons include a 20mm autocannon, for example). With weapon size 222, a weapon hit will be resolved using HE against a soft target and AP against a hard target, despite the fact the unit only is given HE ammo. Do not give Weapon size 222 units AP ammo.

- Sound – Overrides the default sound (which is chosen based on warhead, HE Kill and Weapon size combinations) and uses the sound file number and the two higher numbers (one chosen at random) when the weapon is fired.

- Max Range - The maximum range in hexes, multiplied by four, which the unit can fire. A max range of 40 means 10 in game turns. Fractions are lost when the conversion is made so there is no benefit to using numbers not divisible by four. If greater than 200, then the two non-two digits times 8 is the range so 210 = 10 *8 or 80. The max is 231.

- Max APCR - This is the maximum range, multiplied by four, for APCR (Sabot) type rounds if the weapon is fired on a non-artillery class unit. If the weapon is put on an artillery class unit, then it's the minimum range the target must be for indirect fire. Note that if you give an APCR kill value and leave this blank, it may cause a game crash!

- Accuracy - The range in hexes multiplied by four, where the unadjusted base chance to hit is 50%. Use only values divisible by four, as fractions are lost.

- Warhead - An important number used to determine suppression from HE hits (the formula is warhead plus random number, plus some modifiers. If the number is greater than 9, it can affect units in an adjacent hex. It is also a key in determining the chance of damaging and killing tanks. It also "knock down cover" protecting infantry.

- HE Kill - A relative measure of killing power of the weapon. A 1 is a rifle or pistol, with values rising for heavier weapons. Increasing this value makes it more likely that a trooper is killed when tested for casualty status, though he may make a "saving throw" depending on his experience.

- Pen AP – this is the base penetration in millimeters for a vertical plate at range 0 and an "average" T/D (thickness of armor/diameter of shell) ratio. The value is based on backing off the value for a 30-degree slope plate at 500m using the algorithm for determining slope and combining it with a function to estimate penetration from the rounds ballistic characteristics. It is dangerous to use "book" sources alone as different countries used different criteria for penetration. Some used a "through" criteria meaning the round had to fully exit the test plate leaving a full caliber hole, others only required defacing of a "backing plate" placed behind the test plate (i.e. just the "nose" of the projectile had to protrude. Not only that but the fraction of the time a given result happened is another key. Did you get a "full through" 75% of the time, 25%, etc. But the bottom line is if you feel a value is too high or too low, change it (and let us know where you got your information).

- Pen HE – The penetration of the HE round (accounting for velocity), based on a naval algorithm adapted for SP: WAW. Remember that HE pen is compared to the base armor thickness, not the ballistically corrected thickness (as it is assumed to be as much shock penetration as mass and velocity). There is a 10% chance an HE round will be a dud and its penetration will randomly vary from half to full penetration.

- Pen APCR – Penetration figured as above for APCR (Sabot) ammunition. Sabot is distinguished by a much higher maximum range than APCR, which tends to lose velocity

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rapidly.

- Pen HEAT – Same again, this time for HEAT type rounds. This value is not decreased with range as AP and APCR are, but it varies varied in a similar fashion to HE. It has a 10% chance of the jet being malformed and thus doing only 10% normal pen.

Unit Data

- Name – As above.

- Nation – Make sure this matches the OOB nation or it will not appear.

- Class – Some classes have special attributes, but most just allow grouping in formations. The units with the same class for a given date will be displayed together as options in the formation pick list. Key distinctions include:

    1. Forts are stationary fortifications with a crew.
    2. Mortars have their rates of fire multiplied by 1.5 and the AI expects them to be able to move.
    3. Howitzers are towed onboard artillery.
    4. Artillery batteries are always off board.
    5. Rocket weapons may be give a rate of fire to 99, and all rounds up to that will fire in a single volley. They are offboard artillery.
    6. Assault guns and tank destroyers have no turret.
    7. Use heavy amphibian for AMTRACs that are armored and carry troops on the inside.
    8. Tanks carry troops on the outside where they are very vulnerable.
    9. APC's and IFV's carry troops on the inside where they are protected.
    10. Your headquarters is the A0. Don't have more than one or the AI will be really confused.
    11. Units within three hexes of emplacements get a bonus suppression reduction each turn or as many as 20 suppression points.
    12. Turreted tank destroyers are just what they say they are.
    13. Light mortars may only have their fire called in by the leader of the platoon they belong to.
    14. Caves may only be attacked through the front.

- Smoke discharger – If a vehicle has one, it can pop smoke into the 3 front hexsides when the "d" key is pressed.

- IR (infrared) Vision. This is the minimum vision rating a unit can see – regardless of the actual visibility or time of day.

- Crew – the number of men in the unit at start. When the unit gets down to 40 percent of this number, it starts checking to see if it disbands or disperses.

- Size – The base size of the unit for spotting and targeting purposes. Small is better. Zero indicates a unit that can shoot several times without being detected.

- Carry – The units carry capacity in men (last two digits) and tow capability. AA 100 is a light or medium gun (with a 100 series weight) or if 200, a heavy (200 weight) gun. So a 112 indicates the unit can carry 12 men and tow a light or medium gun. Carry capacity over 222 indicates the ability to load a vehicle.

- FC - Fire control rating – Used to improve hit chances, especially versus moving targets. + FC times 3 is a typical modifier.

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- Stab – Weapon stabilization. This is called “Targeting” in the game unit data in the encyclopedia. Not used much (or very effectively) in WW2, but you can play with it. Affects the shot loss for movement and the accuracy penalty for moving and firing in the same turn. The higher your targeting rating, the farther you can move without suffering a large accuracy penalty. Typical benefits are +stab times 88. A rating of 5 is considered a modern 2000 system, 4 would be 1980s technology, and so on. A 1 rating applies to the 1950s (and a few selected Second World War tanks).

- Speed. The maximum movement points a unit has. Infantry pay 2 for most “regular” terrain. Vehicles (depending on class) can go the full distance only on a paved road. The faster you move the harder you are to hit.

- Radio- this does two things. The fist digit multiplied by 10 is the percentage chance a unit that type has a radio. X0 units always get a radio. The second digit is the rarity factor for the AI picklist. If the AI has a choice of more than one unit of the same class to chose from it will be most likely to pick one with a 0 radio code, so a 70 equals a 70% chance of a radio and “most likely” to be picked. X3 radio codes allow you to have “special” units of a given class that are not included with other units of the same class and date in pick lists. It will only appear in formations it is the only unit of its class attached to.

- Weight – Like carry – but the minimum carry value needed to load the unit. A 100 + crew size is a light or medium gun, while a 200+ crew is a heavy piece requiring a 200 series carry capacity to tow. 222 indicates a vehicle carry capability. The weight should be either 100 or 200 if the speed is 0 + the crew. If not entered, the weight = the number of crew. Vehicle weights are standardized as 200+ 2 times size. So a size 4 tank is a 228 weight.

- Icon – the shp file number that the unit uses.

- RgF – Range Finder. This value *6, *8, *10, and *12 is used to define “range bands” that impose penalties of *.67, *.5, *.33 and *.25 to the hit chance. For instance a RgF of 2 has a normal hit chance out to 18 hexes (900yrds), from 900-1200 itsmultiplied by .67, 1200 – 1500, by 5, 1500-1800, by .33 and beyond 1800, by .25. If the RgF value is greater than 12, it starts to improve the initial shot penalty by comparing RgF*5 to 60 or 80 “depending on 1st or 2nd shot.

- Water – the hexes the unit can move per turn in the water. Note that amphibious vehicles can still bog in swamp, mud or stream. The little propeller doesn’t work in mud, or prevent broken axles in creek beds.

- Survive – the ability of the unit to survive damage. Size and survivability combine to determine the chance a system is knocked out or a crewman is killed. It also affects how many men survive an explosive destruction of a vehicle.

- ROF - The maximum number of shots a unit can have in a turn. Based on experience and movement it gets degraded.

- LBM – the number of the LBM displayed in the encyclopedia

- Text – The number of the text file displayed in the encyclopedia (this is still under development)

- Cost- The point cost to purchase the unit, (which can be adjusted for experience in some cases) and the value of the unit in victory points if destroyed by the enemy (or left

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abandoned by the side controlling fewer victory locations (assumed to have "control of the battlefield" and able to recover his)

- Avail from – Month and year the unit will start to appear in the pick lists.

- To the end of – Units always go out of service at the end of a year.

- Weapon 1 – This is the unit's primary weapon. Opportunity fire range is based on this weapons range. If other weapons have greater range the player may fire them, but opfire will not occur beyond the max range of the weapon in slot 1 Weapon one is the only weapon that can have APCR or HEAT ammo. The value is the number of shots the unit will have as its maximum. You will not be able to resupply the unit beyond this amount.

- Move sound - The first sound slot of three chosen at random to play when the unit moves.

- Armor - The armor thickness and slope for FH (Front Hull), SH (Side Hull), RH (Rear Hull), and similarly for turret front, side and rear and a generic top of vehicle. After all calculations or armor thickness, then a random number from 1 to 3 times skirt value is added. Slope is from the vertical so zero is a vertical flat plate.

Formations

Formations organize units into platoons that are then organized into companies. A platoon may have up to 10 units in it. A Company may have any combination of units and platoons. They can only nest one deep, so a company can't contain a company that in turn is made up of platoons.

- Name – 15 characters as before. Formation type. Only the A0 should be a Battalion HQ.

- Available from year and month – to end of year. Make sure there is at least one unit of the proper class to be available for the complete span indicated, or the formation will appear but be "unbuyable". Several strange things happen if you have gaps or "phantoms".

- Special – formations are designated "elite" (+10 to experience) with a 10 special code and designated "RECON" with a 1 (so 11 is elite and recon). A 2 indicates fast response artillery that arrives faster and tends to all land in the same hex. For company formations the special code only applies to the individual units attached, platoons attached are governed by their own special codes.

- Unit slots 1-10 – You can enter the unit number (3 digit) or formation number (4 digit) or select form the list. The No box should be a 1 with the exception of mortar units that the AI expects can have more than one barrel. Vehicles and infantry ignore this field and have one. Other things may behave strangely if given multiples of themselves. Remember platoons can only contain units and companies can only contain platoons – that are the limit of nesting formations!

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Playing Scenarios and Campaigns

Players have a choice of playing scenarios and campaigns (a series of scenarios) that come with SPWAW, or of playing random battles, or even of designing their own battles. These options are available in the Selection Screen (see the beginning of the tutorial section).

The Purchase System

Choosing Core Units

This is the key to playing the campaigns – and definitely one of the more enjoyable parts of SP: WAW. Core units are units that continue to participate in every scenario in a campaign. Ideally, they are the most experienced, the most useful, and the most effective units in the army. When beginning the scenario, a headquarters (the A0 unit) is automatically provided and is listed as the first formation on the right side of the Purchase Screen. This area lists the units you have purchased so far. It is important to note that the brigade commander (his rank is normally that of Colonel), is always attached to the "A" unit. He is the overall field commander for your troops. You may wish to purchase a command car or jeep to quickly transport this unit across the game map or load it onto a tank or armored car from another formation.

Each individual unit (platoon or company) has a leader attached to it. Additionally, a formation (platoon or company) has a leader who is physically attached to the "0" unit (B0, C0, and so on), and a company is placed under a leader. Units A0, B0, and so on are often referred to as Command units.

To view what units are in a formation, left-click on the formation's name in the Select Formation menu in the middle of the screen. The formation statistics appear and allow you to choose the units within that formation. Often you'll have a choice of equipment within a formation, such as Armor Company that can be outfitted with different models of tanks. Each model will usually have a different point cost.

A single asterisk (*) after a formation's name in the purchase column indicates that it requires a vehicle such as a truck or APC to transport it.

When you click on a formation, its cost (which varies with the equipment in the unit) will appear at the top of the screen. When you buy it, it comes out of your pool of points. If you purchase a formation by mistake, simply left-click on its name on the right side of the screen. That formation is then deleted from your current list and the battle points restored to you to purchase another formation.

There are various buttons in the Purchase Screen, including:

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- Mission. This displays the opponents in the next scenario, what the date is, what the location is, what the mission is set to, scenario length, and visibility.

- Maximum points. This allocates the maximum number of points to both sides. This feature only works prior to the first purchase.

- View Map. This allows you to look at the terrain you are fighting on.

- Nation. This rather interesting feature allows you to purchase units and equipment used by other nations. If you want to create a scenario where the Americans use captured German Tiger tanks, this is how you do it.

Choosing Support Units

Before each battle in a campaign game, you are given a certain number of points to buy support units such as aircraft, artillery, recon and other assets. They remain with you only for the duration of that scenario. Support units give your forces extra punch, as well as serving as useful cannon fodder to preserve your core units.

Non-Combat Support Units

Players may purchase ammo trucks and dumps (see the Combat section). They also may buy headquarters, which provide a morale boost and assist rallying of all units within five hexes.

Ship units are “Off-Map” and provide bombardment missions when in radio contact. Ships are least likely to have a command link due to difficulties in ship-to-shore communications.

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Battle Generator

SP: WAW allows you to choose your own equipment and quickly create your own battles with the Battle Generator. You can choose to play against the computer or a friend, choose the nationalities, set the year and month the battle occurs, and the size and type of battle you wish to play.

Player Control Setting
Six switches, three for each player, determine who controls each player, purchases for each player, and deploys for each player — a human or the computer.

Map Selection
Select either a pre-made map that you have created earlier in the Scenario Editor, or have the computer build a random map.
To pick a pre-designed custom map for a generated battle, this is the procedure:
1. Go to battle
2. Click on custom map.
3. Click continue
4. A list of maps will appear. maps in version 4 have three files just like a scenario. You have a pzmap**.dat (map itself), pzmap**.cmt (title of map) and pzmap**.txt (a descriptive text file telling about the map).

Map Size
If you have the computer generate a random map you must select one of three map sizes, Small, Medium, or Large. Small maps are long and narrow at 40 hexes wide and 100 hexes long.

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Medium maps are 60 hexes wide. Large maps are the full 80 hexes wide and 100 hexes long.

Battle Mission Types
There are three types of battle missions: Advance, Meeting Engagement, and Assault. Using the five buttons with green arrows, you determine who is on the attack or on the defense.

- ***Meeting Engagement*.** Your troops begin at one side of the battlefield, and the enemy on the other. There are three equal sets of Victory Objectives in varying states of control by either side.
- ***Advance*.** One side's troops are the vanguard of their army and are to break through enemy territory and capture objectives on the other side. Enemy units are not entrenched to defend the series of Victory Objectives, and they usually have limited mines or obstacles available.
- ***Assault*.** The aggressor's troops attack an entrenched line of enemy-defended objectives. This is the only type of scenario where the map can include beach terrain.

Set Troop Quality
In order to change the troop quality level, switch the "Historic ratings" switch in the Preference Screen to "Off." Use the up-or down-arrows to make adjustments or enter a value from 30 to 120 after left clicking in the number field.

The primary effect of adjusting Troop Quality is to alter the cost of units that you are assigned. Simply stated, the higher you set the Troop Quality, the more Battle Points the unit costs on the Purchase screen, so the fewer units you are likely to get, however, keep in mind that these troops can be significantly better troops!

Set Other Preferences
Set any other options on the Preferences screen to reflect how you want to play the scenario. Note that setting mines to "Off " may nullify some of the enemy advantage in a battle where you are on the offensive. Left-click on the "Exit" button to continue. These include whether the scenario should be an advance or assault battle. If you want to set the number of points use the Set Battle Points to set for each side or you can quickly give the AI more points by setting the AI Advantage On.

Set Month
Choose the actual month and day the battle takes place. The months between October and February may have snow conditions that can affect movement rates depending on the location of the battle. This combined with the year and nationalities engaged determine the terrain type. Use the up-and down-arrow buttons on the end of this display to adjust the date.

Set Year
Choose the year the battle takes place. The available years are 1931 through 1949. This is important as only units historically available during that year can be purchased.

Set Water Features
Just below the date controls is a button where the amount of water in the hex can be set. The four options are "No Major Water," the default, "River (North-South)", "Beach" and "River (Random)"

Note: This button only works in "Player Assaults Player" scenarios, otherwise the button does not function.

Set Lighting
Below the Water Feature button is the Lighting button. This control changes the overall lighting conditions for the battle, which affect visibility. The options are "Noon," "No Moon," "Half Moon," "Full Moon," "Dawn," and "Dusk." Lighting other than "Noon" reduces the level of visibility substantially for units without enhanced vision gear such as thermal imaging or image intensifiers.

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Set Weather
Weather can be set from clear to snow or rainstorm. The F1 key will bring up a chart showing the weather from 1 to 5 in all of the battle terrains from Summer to Rough.
Set Visibility
Visibility can be manually set to go all the way up to 50 hexes

Set Length
Set the lnumber of turns you want to play.

Max Points
In the buy screen you can increase the number of points by clicking on the Max Points button. The button only works once and then is gone. The computer opponent will purchase according to what you purchased, not the maximum amount you could have purchased.

Deploy Units

Once you have purchaed your units and click “Done”, you will be in the deploy screen where you can choose from Human Deploy or Auto Deploy. If you choose Auto Deploy you will be taken to the Deploy screen to show you where the computer placed your units. You can manually make changes using the Deploy Tool Bar. Left click the selected unit and then move the cursor to the hex to place the unit in and left click again.

Deploy Map Toolbar

- Deploy all units – Go to Next formation –Roster
- Next Unit – Previous Unit – Find Current Unit
- Indirect Fire/Aircraft Assignments – Load Unit – Assign to new HQ*
- Glider Assignments- Paratroop Assignments – Commando Assignments
- Unit Objective – Entrench ALL units* – Build Minefields and Anti Tank Obstacles
- Show unit Visibility – Zoom in Map – Zoom out map
- Clear Dark hexes – Save Game – Encyclopedia
- Toggle Hex Grid – Set Formation Objective – Load ALL Units*
- Set ALL Formation Objectives*- Change Stance – Exit Deploy

* Use extreme caution when using this control - Cannot be undone

When you choose to deploy units manually, all of the purchased units start on the edge of the map and the A0, or Headquarters unit is the active unit, illustrated with the yellow 6. Deploy your units as you did above by left clicking. To stack more than 1 unit in the same hex, press the shift key when left clicking on the occupied hex.

To see how each unit is configured right click on the active unit and the Unit Configuration screen will appear;

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Deployment Controls

- **Deploy Entire Formation** – This allows the player to deploy all of the units in a formation(B,C etc) at the same time in a circle around the "0" unit.
- **Go to the Next Formation** – Thi cycles you through each formation in your roster
- **Go To the Roster** – This button take you to the unit roster, whre you can set waypoints and reaction turns
- **Go To Next Unit** – This button cycles you through each individual unit in your forces
- **Go To Previous Unit** – This button takes you backwards through the roster
- **Find Current Unit on Map** – The button centers the map on the selected unit.
- **Pre-Plan Bombardment Mission** – This button brings up the Indirect Fire screen where you can plan artliiery barrages and airstrikes
- **Load Unit** – This button loads or unloads infantry or artillery on to trucks, barges, HT's or other carrying vehicles
- **Assign Unit to New HQ** – Allows configuration changes in your formation. Such as adding a mortar team to an infantry platoon or a tank to a vehicle to the HQ unit. Select the unit to be assigned and then left click on the a unit in the new formation.
- **Edit Glider Assignments** – This button brings up the Glider deployment screen similar to the Indirect Fire screen. Here you set up Glider drops.
- **Edit Paratroop Assignments** - This button brings up the Paratroop deployment screen similar to the Indirect Fire screen. Here you set up Paratroop drops.
- **Edit Commando Assignments** - This button brings up the Infiltration screen similar to the Indirect Fire screen. Here you set up Commando deployments and objectives.
- **Unit Objective** – This centers the map on the active units formation objective.
- **Entrench All Units** – This button will entrench ALL of the units in your forces. Use extreme caution when using this control.
- **Build Minefields and Anti Tank Obstacles**– Brings up Mines deployment screen whre you can place mines, barb wire and anti tank obstacles like dragons teeth and asparagus.
- **Show Unit Visibility** – Shows the active unit's line-of-sight (LOS) in the direction it is facing
- **Zoom In** – Magnifies the map. There are 4 zoom levels
- **Zoom Out** – Reduces the map magnification.
- Clear Dark Hexes – Clears the battle map of any shaded or smoke filled hexes for better viewing.
- **Save game** – Saves the current game. Left click a slot on the save menu and the turn number and sides are entered automatically.
- **Go To Weapons Encyclopedia** – Opens the Encyclopedia.
- **Toggle Hex Grid** – This turns on or off the hex sides and overrides the preference button for the duration of the deployment.
- **Set Formation Objective** – This sets the objective for the active unit's parent formation (B0, C0). This control can be combined with waypoints for computer control of the formation
- **Load All Units Into Closest Vehicle** – This allows the player to quickly load all of the units in your forces into the nearest load carrying vehicle. Use extreme caution when using this control. Once loaded it cannot be undone and formations may be mixed up causing Command and Control problems. Save your battle before using. It is best used when purchasing for scenario design and formations are purchased and deployed inidvidually instead of purchasing all and deploying all.
- **Set All Formation Objectives**- This allows the player to set one hex as the objective for all of the player's units. This control can be combined with waypoints for computer control of the individual formations
- **Change Formation Stance** – The button changes the stance from Advance to Defend for all of the players forces.
- **Quit** – Exits the Deployment screen.

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Unit Configuration

On the Unit Confiruration screen is the details for each individual unit. All of the lines in green are user changeable by left clicking and typing in new dtata such as;

- Unit name up to 15 characters
- Leader's name up to 15 characters
- Main weapon toggle on /off
- Unit range
- Unit Stance

The information on this screen describes the speed of the unit, the number of men, if it has a radio, the Fire control rating of the unit, the targeting of the unit, The size of the unit, the cost of the unit, the carry capacity of the unit, The armor rating of the unit, equipment carried by the unit and ammunition type and amount. The other information displayed on this screen is explained elsewhere in this manual

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Scenario Editor

The Scenario Editor allows you to create scenarios from the ground up by selecting the month and year, terrain, equipment, troop types and their placements. The largest difference between the Battle Generator and the Scenario Editor is that scenarios must have both sides' forces chosen and deployed. There is a greater degree of control of the quality of units and leaders. The maps can be heavily modified or built from the ground up, the scenario can be used to build a campaign with other scenarios, and the scenario must be saved and then loaded as either a scenario or as part of a campaign. It is necessary to understand the following for proper scenario design.

- There are five "scenario settings" including Assault v. Defend, Advance v. Delay, Meeting Engagment, Delay v. Advance, and Defend v. Assault.

- There are two "unit stance settings" -- advance or defend. These settings are found in Editor>Deploy>Headquarters. It is the small button with with two arrows forming a circle.

- There are two "control settings" -- computer control v. human control. Again, found in Editor>Deploy>Headquarters. It is the small button with the human face (if you click on it, it should change to a computer).

- "Victory objectives" are the small national flags that appear on the map marking those hexes

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the capture of which will result in victory points.

- "Objective flags" are the small red and blue flags which mark the objective of a particular unit.
- "Command/control" -- a button on the preferences screen. If it is on, objective flags are needed in order to get units to move.
- "Reaction Turn" -- A setting found in Editor>Deploy>Headquarters which will set the turn in which a unit will react. I understand from one of Bill's notes that sometimes the unit will start moving one turn earlier than the reaction turn. After some testing, I believe the computer sees the first turn as the 0 turn so that if you want a unit to move on turn 6, then you need to set it for turn 5.
- "Waypoints" -- another setting found in Editor>Deploy>Headquaters which will direct a unit to follow a series of waypoints.

Selecting Nationality

The first thing you want to do is set up who is fighting whom. In the upper-left corner of the editor, you can pick which nations are fighting each other.

Set Year and Month

Next set the month and year of the battle. In the lower-left portion of the menu there are two controls; one each for the year and the month.

Visibility Setup

Below the Year and Month control is the Visibility Setting control. This control shows you how far the units in your armies can see unaided. Use the up and down arrows to adjust the setting. For example, a setting of 10 means that all of the units are able to see only ten hexes away, and a setting of 25 means that they are able to see twenty-five hexes away. The unit's Vision rating can override this limit, so that a unit with a Vision rating of 10 can see a minimum of ten hexes regardless of the visibility setting. For now, set Visibility to "20."

Enter Battle Location

Type in the location of the battle. Such as Malmedy, Belgium or Kharkov, USSR. This will appear in the information box in the upper RH corner of the game screen along with the weather, visibility, time and weather.

Buy, Deploy and Auto Buttons

- ***Buy Button*.** Clicking on the Buy button displays the Purchase screen for that nationality where units are bought with Battle Points.
- ***Deploy.*** Clicking on the Deploy button displays the Deployment screen with your units lined up against your back map edge. See the "Deploy Forces" section for details.
- ***Auto.*** Clicking on the Auto button has the computer deploy your forces and displays this deployment for your approval or re-deployment. See the "Deploy Forces" section for details.

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Select Mission Type

In the upper-center are the Mission Selection buttons. These allow you to pick the basic Mission Type, such as “Assault” and “Advance.”

Map Controls

Select Terrain Type

The editor allows you to pick the Terrain Type you wish to fight in. You have five choices of map types: Desert, Summer, Rough, Jungle or Winter.

Select Battle Size

Below the Map Selection buttons are the Battle Size Selection menu. This menu only changes the size of the map the battle is to be fought upon. You have the choice from small to large. For this example, we picked “Small.”

Select Forces

Now it’s time to purchase units for your battle. The “Buy” buttons operate in the same fashion as the Battle Generator menu. . If a scenario designer wishes the squads to be "under strength", they should set the Reduced Squads setting on when they purchase the units, and the men in each unit will be reduced at that time.

Enter Battle Location

Type in the location of the battle. There is room to enter a town and country. You may have to abbreviate.

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Editor Deploy Screen

The Deploy Screen of the game editor is similar to the Battle Deploy screen. It has a few additional controls for refining the scenario such as choosing and placing Victory Objectives, Changing unit types and setting up reinforcements

Editor Screen Deploy Toolbar

Deploy all units – Go to Next formation – Roster

Next Unit – Previous Unit – Find Current Unit

Indirect Fire/Aircraft Assignments – Load Unit – Assign to new HQ*

Glider Assignments- Paratroop Assignments – Commando Assignments

Unit Objective – Entrench ALL units* – Build Minefields/Barb Wire/Dragons teeth
Show unit Visibility – Zoom in Map – Zoom out map

Clear Dark hexes – Save Game – Encyclopedia

Toggle Hex Grid – Set Formation Objective – Load ALL Units*

Set ALL Formation Objectives*- Change Stance – Change number of men

Edit Victory Objectives – Change unit type – Modify unit data

Make unit a reinforcement – Make unit an auxiliary – Add/remove entrenchments
Change start line – Change victory cost of units – Preferences

End Deploy

Deploy Screen Buttons

- **Deploy Entire Formation** – This allows the player to deploy all of the units in a formation(B,C etc) at the same time in a circle around the “0” unit.
- **Go to the Next Formation** – Thi cycles you through each formation in your roster
- **Go To the Roster** – This button take you to the unit roster, whre you can set waypoints and reaction turns
- **Go To Next Unit** – This button cycles you through each individual unit in your forces
- **Go To Previous Unit** – This button takes you backwards through the roster
- **Find Current Unit on Map** – The button centers the map on the selected unit.
- **Pre-Plan Bombardment Mission** – This button brings up the Indirect Fire screen where you can plan artliiery barrages and airstrikes
- **Load Unit** – This button loads or unloads infantry or artillery on to trucks, barges, HT’s or other carrying vehicles
- **Assign Unit to New HQ** – Allows configuration changes in your formation. Such as adding a mortar team to an infantry platoon or a tank to a vehicle to the HQ unit. Select the unit to be assigned and then left click on the a unit in the new formation.

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- **Edit Glider Assignments** – This button brings up the Glider deployment screen similar to the Indirect Fire screen. Here you set up Glider drops.
- **Edit Paratroop Assignments** - This button brings up the Paratroop deployment screen similar to the Indirect Fire screen. Here you set up Paratroop drops.
- **Edit Commando Assignments** - This button brings up the Infiltration screen similar to the Indirect Fire screen. Here you set up Commando deployments and objectives.
- **Unit Objective** – This centers the map on the active units formation objective.
- **Entrench All Units** – This button will entrench ALL of the units in your forces. Use extreme caution when using this control.
- **Build Minefields and Anti Tank Obstacles**– Brings up Mines deployment screen whre you can place mines, barb wire and anti tank obstacles like dragons teeth and asparagus.
- **Show Unit Visibility** – Shows the active unit's line-of-sight (LOS) in the direction it is facing
- **Zoom In** – Magnifies the map. There are 4 zoom levels
- **Zoom Out** – Reduces the map magnification.
- Clear Dark Hexes – Clears the battle map of any shaded or smoke filled hexes for better viewing.
- **Save game** – Saves the current game. Left click a slot on the save menu and the turn number and sides are entered automatically.
- **Go To Weapons Encyclopedia** – Opens the Encyclopedia.
- **Toggle Hex Grid** – This turns on or off the hex sides and overrides the preference button for the duration of the deployment.
- **Set Formation Objective** – This sets the objective for the active unit's parent formation (B0, C0). This control can be combined with waypoints for computer control of the formation
- **Load All Units Into Closest Vehicle** – This allows the player to quickly load all of the units in your forces into the nearest load carrying vehicle. Use extreme caution when using this control. Once loaded it cannot be undone and formations may be mixed up causing Command and Control problems. Save your battle before using. It is best used when purchasing for scenario design and formations are purchased and deployed inidvidually instead of purchasing all and deploying all.
- **Set All Formation Objectives**- This allows the player to set one hex as the objective for all of the player's units. This control can be combined with waypoints for computer control of the individual formations
- **Change Formation Stance** – The button changes the stance from Advance to Defend for all of the players forces.
- **Change Number of Men** – Changes the number of men in the active unit.
- **Edit Victory Objectives** – Takes you to the Objective screen where you pick and place your Victory objectives.
- **Change Unit Type** – Allows you to change the active unit from one type to another such as an infantry squad to a tank.
- **Modify Unit Data** – Allows you to change specification of the unit, such as weapons, speed, size, number of men, name, armor, morale and experience. A separate button allows you to change the leader settings.
- **Make Unit a Reinforcement** – Allows you to set the turn and location for the unit to enter the scenario.
- **Make Unit an Auxialary -** Allows the designer to make the unit an auxialiary in a campaign
- **Add/Remove Entrenchments –** Gives the option to entrench or remove entrenchments from the active unit.
- **Change Start Line –** This button take you to the start line screen where you can reset the start lines for each side on the map.
- **Change Victory Cost of Units –** Changes all of the units points value by a multiple entered by the designer.
- **Preferences –** Takes you to the Preferences screen
- **Quit** – Exits the Deployment screen.

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Build a Map

Below the Terrain and Visibility settings are the Map Selection options. You may either have the computer build you a “Random” map, or you can “Load” a saved map, or you can “Edit” an existing map that has already been loaded. For this example just pick build a “Random” map. It may take the computer a few seconds to generate the map. Once it is done, left-click on the Edit button. Note that generating a random map may also alter the visibility setting.

Basic Map Editing

You now have a randomly built map. You can either accept the map as it is, edit the map, or clear the map and start from scratch. To edit the map, you first have to select a terrain tile you wish to add. On the right side of the screen are available terrain icons you can choose from. For more descriptions on the icons, please refer to the “Map Editing Controls” section.

For now, let’s add some woods. Left-click on the “Add Trees” button, then pick a spot on the map you wish to add trees to, and left-click again. A tree hex has now been added to your map. Now, if you right-click on a hex, the terrain type is added not only to the single hex you just clicked on, but also to six surrounding hexes. This allows you to quickly add large amounts of terrain to the map. You may now do the same for most of the other terrain buttons.

Making roads and streams works differently. Left-click on the “Secondary Road” button. Now left-click on the map where you wish the road to start, then left-click again on the map where you wish the road to end. Be careful not to make very sharp curves or turns, as the computer may have difficulty interpreting this. The method is the same for making paved roads and streams.

Map Bar Buttons

- Zoom in- Zoom out- Clear Map*
- Cliff,rocks,boulders -Walls- Hedges
- Bocage- High grass- Orchard
- Vineyard- Trail -Mud
- Clear- Swamp,Marsh -Rough
- Level 1 Hill- Level 2 Hill- Level 3 Hill
- Streams,Gullies,Trenches -Water -Trees
- Crops,Polders,Graveyards/Rice paddies- Green crops,plowed field -Palm tree/Rice paddies toggle
- Wood Bldg.- Stone Bldg.- Multihex Bldg.
- Secondary Road- Paved Road –Beach/ocean map*
- Pavement, dirt, gravel, cobblestone – Rivers* - Sand
- Lt damage- Hvy damage -City grid
- Map text – Fill terrain – Range of fill terrain
- Change sides- Canals*- Railroads
- Save map-Exit

* Use caution – changes cannot be undone

Tutorial: Designing Your Own Scenarios

By Wild Bill Wilder

There are some basic tricks to designing scenarios. The ones in this article apply to Steel Panthers, but they'll help you create battles in any wargame that has a scenario editor. The new victory objective types in Version 3 can make for very challenging scenario designs. Before you start, put some thought into the type of battle and how the victory objective will be used to determine the outcome of the battle. For aspiring scenario designers, learning to use any editor in a game is a process. So you learn by trial and error, not always a pleasant experience. The result, however, can be worth the effort. So jump right in and allow your creative juices to flow freely. Make your own war!

We'll start with the basics for beginners (if you're experienced in scenario design, skim this anyway. You might find something interesting). Remember – this is the ultimate hands-on process. You'll only learn it by doing it.

The Basics

First, here's the sequence of how the process works:

- Choose a battle
- Design a map
- Choosing your unit.
- Placing your units
- Assigning objectives
- Put on the finishing touches

Step 1 – Choosing a Battle

Perhaps you have in mind some particular conflict that has interested you for some time. It could have been the suggestion of a movie you saw or a book you read, or perhaps you played a SP: WAW scenario and decided it could be improved. Some sources of inspiration are:

- **Your own library**. Most people into military history have a limited selection of books they have gathered over the years or months that might offer the material you need. Start there.

- **A wargaming friend**. There may be someone you know who has books that he will lend out. If you borrow them, do return them. There's nothing lower than a book thief.

- **The Public Library**. If possible, visit your local library. You can find some volumes there that are simply not available anywhere else. Some of these are real treasures. Look through the military history section and see what is there.

- **TV**. It's not always the Boob Tube. There are a number of channels that offer good historical documentaries on various aspects of warfare. Some of the programming is very general, but it can get your mind started in the direction of where you would like to go. Some of these include

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"Victory at Sea," "Battleline," "World at War," or perhaps best researched series, called "Battlefield." Many of these can be purchased and are worth the money.

- **Book Stores**. Here is one of your better sources. Visit those in your town or city. Look in the phone directory for the listing of second hand bookstores. There are some real finds there. Many bookstores ship by mail. Write them and ask for their catalog – they should be free.

- **The Internet**. There is a slew of military history sites on the Web.

Step II – Making a Map

This is one of the trickier parts. But just as terrain determines a real-life battle, the quality of your map will profoundly affect your game. Proper map building will take as much or more time as any other part of the effort. In fact, most maps require a day's work if they are worth anything. Avoid computer-generated maps. They look like jigsaw puzzles with the pieces stacked on top of each other.

For example, your scenario will suffer if your map is either too barren or too busy. A barren map is open ground with few terrain features. It makes for an ideal long-range gunnery contest, but gives little opportunity for strategy and maneuver. On the other hand, a map that is too crowded with rough terrain limits the movement of units to a crawl, causing the battle to drag. Somewhere in between is where you want to be in your map design.

1. Remember to constantly save your work. Crashes do happen when working with computer programs. No matter how stable the game might be, it can happen. Power outages, a heavy handed cleaning, curious kids and roaming pets can create havoc from the outside. Nothing – repeat nothing – is more upsetting than spending 3 long hours working your way through a map design and then have the computer suddenly freeze. You can watch your work disappear as the machine reboots. Try to save every 10 minutes or so.

2. Avoid Certain Buttons on the Map Editor. Almost as disastrous as not saving is the pressing of certain buttons on the map editor. Open the map editor in your game and look on the right. You will see various rows of small squares or buttons. These are what you use to place certain types of terrain onto the blank map in front of you. Among the improvements in SP: WAW is that the most damaging buttons now have a "Yes-No" option. Which buttons are deadly?

- **CLR** – If you press it, the computer will ask you if you wish to erase the map. Type a "Y" and it is done. Even then its not a problem – because you saved your work, didn't you?

- **Half Beach – Half Ocean** – Did you notice the little button that has sand and sea on it? That one is for designing amphibious scenarios. In all other versions of Steel Panthers, when you click on it, the editor automatically adds landing craft of one sort or another to the first side chosen, or to both sides if a meeting engagement has been designated. No problem – except you can't get rid of them unless you start the scenario from scratch. SP: WAW fixes this bug, but still be careful.

- **Streams to Rivers** – Don't use this one. Period. If you are careless and click on this one thinking you are going to place streams, any streams already on the map will take on garish proportions, filling your map with bizarre designs, beaches and covering over a lot of terrain you have done.

3. Make Large Maps – Unless you are absolutely sure that a small map will suffice, always go

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with a large one. Why? Because once you begin your unit choices and placement, you may find yourself too cramped to properly do your scenario. Of course you can change the map size and a bigger chunk will be added at the bottom, but your key objectives may be all out of place in the larger scale. It is better to have too much than too little.

4. Strive for Certain Qualities – Some touches make the difference between a popular scenario and one that people delete from their hard drives. You should try to:

- Be as historically accurate as possible. Remember, however, that very detailed maps of an area are almost impossible to find. But usually your sources will give you at least a general description of the terrain. For example, many battles focus on a town, bridge or road junction. This key location should be placed in the center of the map.

- Make your map as realistic as possible. Look out at the window and see the actual geography around you. Notice how hills form, how roads are laid and how rivers and streams meander. Hills and woods do not form perfect shapes – they jut out at irregular angles. Roughen up your hills with jagged protrusions and sharp indentions. Make the higher elevations of hills follow the flow of the lower elevations. Pattern your map-making on what is real.

- Make your map as pleasing to the eye as possible. A map can be very accurate and incredibly ugly. Learn how use high grass to break up those boring open spaces. Spread trees without a pattern. Break up the octagonal shapes that will tend to pervade your first maps.

Of course, scenario designers pressed for time can avail yourself of the map catalogs available at the SP Arsenal section of The Gamers Net. You'll find maps for every version of Steel Panthers, including SP: WAW. Though some maps might be interchangeable from one version to another, don't mix them. You might not like what you see.

Read through the descriptions, find a map that might meet your needs and simply download it. If it needs some changes, you can always clear the center of the map (but NOT with the CLR button) and revamp it to your liking. These maps are designed to be excellent for two-player games and especially for PBEM games.

4. Determine what is most important – And start there. It's better to work from the center of the map outward. Doing this avoids you finding yourself running out of room, or finding the battleground squeezed into a tiny corner of a very big map. In most scenarios there is the surrounding terrain and the terrain where the actual battle took place. To be sure that you do justice to the primary area of activity, begin with it. The left over space you can fill with the appropriate terrain to the scenario.

For example, if you were doing a Mount Suribachi assault in an Iwo Jima scenario, you would place it in the center of your map. Once you have an idea of just how much space it will take, you can do the rest of the map in sync with the center.

The only exception to this rule might be an assault-defend scenario, when you want the attacker to have to work his way across the battlefield. If you need defenses in depth, you need to begin toward the left or right map edge, depending on where the defender is.

It's easier to begin by creating the hill and mountain masses. The streams, rivers, roads, highways and towns are usually built around them. Remember roads and rivers curve for a reason.

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5. Be Aware of Scale. Try to remember the scale of the map as you work. In SP: WAW the hex represents 50 yards from corner to corner. That means two hexes are about the length of a football field. Note that while SP: WAW is based on Steel Panthers III, the latter game uses a hex scale that's quadruple the one used in SP: WAW.

6. Don't be Afraid to Change something. Finally, as you work, you may become unsatisfied with the layout of a road or the shape of a hill. These can be changed easily with the famous "all purpose" button toward the top of the menu bar on the left. This changes existing terrain to normal terrain (think of it as a cleanup button). This will probably be the button used most in your map design, especially the first few tries.

7. Know your Friends. Not all the buttons are your enemies. Some are a big help. Open the map editor and just play with it for a while. This time you don't have to save anything. Just make some maps. See how it feels to lay road, place streams, form hills, and build cities.

Practice with it for at least 3 or 4 hours before any serious attempts to design a map. It will be time well spent and save you a lot of frustration. When you do this, you will find that most of these buttons are user friendly. For example, notice the buttons that say "Fill Range" and "Fill." To avoid changing terrain one tile (the type of terrain you are laying) at a time, you have two choices.

Pick trees. After picking them to place on the map, *right click* on the spot where you intend to place the trees. See what happens? It is now an octagonal shape. The center hex and all adjacent hex filled with trees. You can modify that shape by left clicking on a couple of adjacent hexes.

If you have a large area to fill, such as a hill or a large forest, click on Fill Range." The computer will ask you for a number. Pick five. Now left-click on a hex. Then type the letter "F." Now the adjacent four hexes in all directions are filled with trees. You can break up the pattern a bit by left-clicking and removing a few of the trees with the "normal" terrain button.

So Fill and Fill Range can be very helpful in quickly preparing large areas of your map. They are particularly helpful with large hills, forests, and large grassy areas. Trim and shape them with the "normal" terrain button afterward.

Now practice with all of them. Even use the "no-no" buttons just to see what they will do. That will give you the proper respect for them and the devastation they can cause to your work.

Remember that some tiles will overlay. For example, rough terrain can be place over a stream and it will not erase it. Swamp or normal terrain, however, will remove that section of stream. Which ones do and which ones don't will be learned by practice.

Save you map. Give it a name and write up a txt file for it just like a scenario. The map will be saved in the maps directory

Write up Your Battle

Now after you have done your research and background study, you must write a short resume of just what happened. Reduce it to two paragraphs. Include the units involved and a brief description of the fighting. It doesn't have to be elaborate, just accurate and concise. You save it as a pure text file into the *scen* subdirectory of the SP game you are using with the number of your scenario slot plus a ". txt" extension.

Each scenario is composed of three files. They all have the same name, which begins with "Scen*** (the * is a zero or a number), but each carries a different extension. The "scen***.cmt" file is the title of the scenario (the name you give it when you save it). The "scen***.dat" is the scenario itself. Finally, the description that pops up when you click on the scenario name in the

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game is called “scen***.txt.” This last named file is the one you are preparing now. Until you know just which slot your scenario will occupy, simply save it as the name of your battle. You can change it to the proper name by renaming it.

Setting up the Basic Elements of your Scenario

The first step in your map building process includes some things you will do every time you create a scenario. But first you have to get to it. From the main page of your game, click on "Editor." A new screen will appear. One section of the main editor screen is devoted to the creation and modification of maps.

Before you begin the map, however, you must set a few basic parts of your scenario. These include choosing the opponents, setting the date, and picking the type of battle. You also want to set your visibility limit, time of day and weather conditions. This will determine how far units can see. Keep in mind the scale of your game here.

The “Name” button on the scenario editor page that says refers to the location of the battle. Click on this button and then type in the name of the place where the fighting occurred. This name will appear in the information at the bottom of the screen when you are replaying the scenario.

Once you have set the parameters (the basic elements of the scenario), go ahead and save it just to be safe. Click on the “save” button (not the map save - these are two different save commands) in the main editor interface.

The scenario list will then appear on your screen. Save it into an open slot (one marked “empty”). The computer will ask for a name. Save it under the name of your battle. Now go to your Windows Explorer (File Manager) and see what the newest scenario is in the \scen subdirectory (look at the dates). The scenario you saved will have two files, a *.dat and a .cmt file. Now you can rename your text file with the same name. For example, if your scenario was saved as “Scen065.dat” and “Scen065.cmt,” then you will rename your “.txt” as “Scen065.txt.”

Now you have your three scenario files.

Restart your SP game and go back to the editor. Load your scenario by finding it in the scenario list and clicking on it. Now that the preliminaries are done, lets make that map!

Creating the Battlefield

At this point, you are ready to create your map. Gather your information on the terrain, clear the map screen, choose the size of your map and the current climate, and begin laying tiles.

Put in the hills, streams and rivers first. Then add your roads. Next, put in your towns, villages and cities. Finally add trees, rough terrain, and any other little touches you want to give it. This process will take a few hours so just be patient and remember to save, save, save. Don’t be afraid to erase and change. Work with it until you are satisfied with its look.

Be sure and notice which side of the map the combatants will appear on. Do this by clicking on the Buy button under the nationality flag of each side. You don’t have to purchase units at this time. You just want the HQ unit of each side to appear in the top left and top right hand corners of your map. The left side flag does not always guarantee that those units will appear on the left. You’d better check this before you start building your map. You don’t want to have it backwards, with the opponents on the wrong sides of the battlefield.

If perchance you find that the units are on the wrong side, SP: WAW makes provision for changing that. Look in the map editor at the button on the bottom left hand side. Run your cursor over it. You’ll see which nationality is assigned which side of the map. A simple click will reverse

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these. It's a very handy tool!

Step III – Choosing Your Units

Your Warriors

Purchasing units is fun. As you peruse the files listing available units, you begin to feel like an arms dealer with a bundle of money. So many things to buy! Make your purchases carefully, however, as they will largely be the determining factor of your victory or defeat.

Let's begin by loading your saved scenario into the editor. Once loaded, you are going to buy units for both sides. Notice under the flags that there are some buttons. The two that are of interest to you are "Buy" and "Deploy." The first one allows you to purchase your units. The second one lets you place them as you think best.

Making Purchases: No Credit

Just before you begin picking and choosing, there are a couple of things to keep in mind:

The number of Units in the Scenario: Except for campaign or battle scenarios, the purchase points have no relevance. You are only limited by what the game can handle. But don't make your first scenario a monster. The natural inclination is to buy, buy, buy ("Oh," you say to yourself, "I just gotta have another platoon of tanks!"). Keep it manageable, say 40 to 60 units for both sides in your first attempt. Big scenarios are not always good scenarios!

Keep in the back of your mind the description you wrote for your scenario. It will serve as your guide in creating it.
If it is historical (or even hypothetical), you need to be cognizant of what weapons were available during that time period (note that the choices the game allows you are very accurate, but not totally accurate), the type of units involved and the type of battle you are developing. For example, don't give one side all tanks and the other side only infantry unless the historical situation calls for it.

The Availability of Units for your Scenario: Be sure the date for your scenario is correct. The game will generally offer you the weaponry and unit organizations available during that time period. There also are numerous Steel Panthers enthusiasts who have devised their own unit and weapon files. These can be put into your Steel Panthers main directory. Check around on the Steel Panthers discussion forum on The Gamers Net (www.thegamers.net).

The Unit lists

Within each major class are minor classes. Within the infantry class, for example, you have basic infantry, engineers, recon units and more. Each of these may have special abilities or cost varying amounts of points. If you want to clear mines and blow bridges, you would pick engineers, which are more expensive than regular infantry. If you want to do some serious reconnoitering of the enemy's positions, you would need some reconnaissance units.

SP: WAW allows you to remove formations from your buy list by simply clicking on them once they are purchased. Remember that if you replace them, the new units will go into the list in the same spot from whence you removed the other units.

Your Choices

Now it is time for action. Begin picking your units. Choose carefully. and be sure and save your work before you begin to fiddle with your choices. Balance your forces depending on the type of scenario you are designing. A good basic rule of thumb is that the attacker should outnumber the defender 2 to 1 in

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advance or assault scenarios.

That formula will vary somewhat depending on the type and quality of the units. For example, two M-5 light tanks are not really the equivalent of one Panther tank. Here you might want a platoon of M-5s, or more likely a platoon of Sherman Jumbos.

If you have some question about the units and their capabilities, consult the encyclopedia of weapons included with each game. It gives basic data about each unit and weapon.

Step IV – Placing Your Units

Don't use auto-deploy. On the Main Editor Screen you will see buttons with flags and the word "Deploy." Your map should appear. Where are your units for both sides? Look at the edges of the map on the left and right sides. There they are, all in line from top to bottom. They are waiting for you to put them in place.

Unit Modifications

Replacing a Unit: If you click on the top right button in the button list to your right, you will see a listing of your units by formation. These are the forces with which you will fight your battles. Before placing them, however, you may wish to change a unit, either to another of the same type, or one that is completely different. For example, if you have a platoon of M4A1s, you may want to change them to M4A3s for the increased benefits of a later model of Sherman. Remember that you do not do this from the "Buy Units" screen, but from the "Deploy Units" screen.

The process is simple. First click on the unit you wish to change while the map is in front of you. You will have to do it one unit at a time. You cannot replace an entire formation unless you delete it first. After you click on that unit, look at the deploy buttons on the right. Click on the one with a tiny "R."

A list of possible substitutes will appear. Choose the unit you prefer and then return to the deploy screen. Your unit has been changed. Note that when you do this, you will have to re-click on the hex where the original unit was to make the new unit appear in that space.

You can do this at any time in the editor. Perhaps after testing your scenario, you may want stronger or weaker units. Simply use this process and replace the forces and then save into the same slot. If you are unsure of any changes, you can also save this new scenario in a different slot. If you like the changes, you can delete the older scenario and replace it with the newer. Then simply delete the material in the second slot.

Reconstructing Units: But what if you replace artillery with tanks? Is the process the same? Well, yes, for the most part. There is one extra step, however, when you replace a unit with another that is a different type. You will have to open the new unit's detailed information. To do that, click on the "Data" button just to the right of the Replace button. It allows you to modify the unit to your taste.

With the new unit highlighted, click on the data button. A new screen with the attributes of the unit will now be in front of you. Many of these attributes or characteristics can be changed. For example, by clicking on the name of the unit, you can then put a new name in its place. Weapons, armor values, the number of men in a unit can be modified to your need. You can effect changes to make a unit stronger or weaker, according to history or the need of your scenario. This is a very useful feature when balancing your scenario.

A unit, in addition to its weapons, radio, and other features, has four values. These are its morale, infantry, artillery, and armor capabilities. These can be changed to make a unit stronger or

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weaker in each of these aspects. Notice that an infantry unit has a higher infantry capability than artillery or armor. This number refers to the unit's skill and proficiency in that field. A rating of 70 should be about average. An elite crew should be 85 to 95. Anything over 150 makes the unit nearly invulnerable.

Morale is the unit's staying power. The higher the number, the lower is the possibility that the unit will be pinned or routed. A unit with a morale of 40 or less will just about break whenever it is fired upon, whether it suffers casualties or not. A number over 90 makes it a tough, "hang in there" kind of unit.

You can also change an infantry unit in number. Instead of a squad of thirteen men, you can change it to reflect casualties by setting its strength at ten.

Leaders also can be modified. Click on the button for your leader. A similar screen appears. Make the leader stronger if you wish. The first unit in a formation (the one ending in 0) is the leader of that formation and will influence the rest of the formation. By making a leader stronger, you automatically increase quality of the units under his command, as long as they stay in contact with him.

Reassigning Units: You can reassign units from one formation to another. If, let's say, you have a platoon of four tanks and you want to add a fifth, you can purchase a sniper unit, convert it to a tank of the same type, and then assign it to that formation. Of course this skips letters in the formation Ids, but it does not affect the game in any way.

Open your scenario with the deploy button if it is not already open. Find the button with the little soldier saluting and an arrow? Now follow these simple steps.

- Click on the unit you wish to reassign.
- Click on the "R" button.
- Click on any unit of the formation to which you wish to attach the new unit.

You will see a small screen that tells you it has been changed. You can verify that by looking at the roster list (top button, right hand side). It should show the unit as being reassigned to the new formation.

For example, say you want to add a squad to infantry formation B, but you purchased a sniper. It comes up as unit S0. Change it to an infantry squad by using the "Replace" button; click the "Reassign" button than click on one of the units in Formation B.

Step V – Placing Objectives and Units

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Who controls objective hexes wins the game, so placing them correctly is crucial. You have twenty-one objectives for each side. You can place them anywhere on the map, and change the value and ownership of each one. They can initially belong to side A, side B, or neutral. Neutral objective hexes are good for meeting engagements. You can change the type of objective to suit the type of scenario you are designing. For example, you can use exit hexes to simulate breaking out of an encirclement. Read the section about objective to fully understand how to use the objectives.

Objective Values: The value of these objectives should be in harmony with the size of the scenario. They can be worth between 10 and 250 points each. For a scenario with about 40 units on each side, you may want to assign a value of between 100 and 150 points for each objective or 10 to 30 points if the objective is turn based control instead of end of game control. Some objective types have an automatic point level that cannot be changed. The more important objectives (usually the ones farthest from the center of the map) should be of a greater value. After you test the scenario you may want to increase or decrease their value.

Objective Locations: Look at your map and place these objectives at points that are key to the battle. That could be hilltops, road junctions, villages, towns or river crossings. Only you know what geographical features are important in your scenario. Place these objectives according to the important areas on your map. Don't spread them into 21 widely separated hexes (it makes life harder for the computer-controlled player). A good spread is seven clusters of three hexes each, three clusters of seven each, or three stacks of five and one stack of six (Of course there should be presumably the most important objective). Do keep some distance between clusters all the combatants don't crowd into the same small space.

Placing Units

Where should you place them? Again, it depends on the particular scenario. If it's a meeting engagement, you should place both sides equidistant from the objectives (keeping in mind the terrain and the speed of individual units). In an assault-defend scenario, the defenders should be clustered around the objectives to protect them. The attackers should be some distance away, but not too far. You will have to place them, test your work, and then move them around to meet the needs of a scenario.

Place or move units by left clicking on them, then left click in the space where you want them to be. If you want two units in the same hex, left click on the unit, then right click on the hex where the first unit is. Then, of course, you want it facing in the right direction. Right-click in the direction you want to face.

Some rules of thumb:

- **Not too far and not too close**. You want your units in a position where it does not take half game just to get into action. People become quickly bored with a slow starter. The units should be close enough to have some combat by turns 3 or 4 at the latest. Yet also leave enough space so that the players have an opportunity to plan some strategy (such as a flanking move) before combat is joined.

- **Don't scatter formations**. Try to keep units of the same formation relatively close together, so they won't suffer command control penalties. Radio-equipped units can be a little further apart.

- **Place units according to their characteristics**. Units poor in self-defense (such as trucks) should not be at the front of a defensive line. Artillery should be in the rear, while units with limited range need to be close to the action.

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- **Try to set up units to be mutually supporting**. Throw a company or a platoon in an isolated position, and it won't last long. Don't create situations that force your units to be Rambos. You'll be disappointed.

Step VI - Final Touches

Finally, it's time to finish the scenario by cleaning up all the loose ends. These are:

- **Scenario Length:** How long should a scenario be? It depends, of course, on the scenario. It should be long enough so that one side can achieve victory, but not enough to drag it out. You can test an ideal length by setting the scenario to a computer versus computer battle. When you see the battle is decided, stop the computer players by pressing the Escape key. That's a good indicator of how long the scenario should last. On the other hand, you may want to shorten the scenario a bit to provide the feeling of urgency in a battle. Keep in mind also the terrain, the distance between opponents initially and the force of the resistance. A length of 10 to 15 turns is reasonable.

- **Formation Stance:** In a meeting engagement, formations should be set to Advance. If they're the defenders in a Defend scenario, they should be set to Defend. Use the "Formation Stance" button in the Deploy Screen.

- **Setting Waypoints and Unit Objectives:** If one side is likely to be controlled by the computer (for those who play games solitaire), you'll need to assign waypoints and unit objectives to the computer-controlled formations. When your scenario is loaded into the editor, click on the HQ roster button. In the center of the screen, you will see your units listed by formation with the name of its leader. To the left of the leader's head is a little arrow. Click on it. Now the map and the deployed units will appear. Simply click on the route you want the units in that formation to follow. You can have up to 10 waypoints for each formation. By doing this, you can take the formation via a circuitous route and avoid going directly to the objectives. Otherwise, the computer will always attempt to find the most direct (in other words, predictable) route to the nearest or most expensive objective hex and use it. Note that ground units that are to be loaded in vehicles are a problem. To set waypoints for them, you must do so before loading them. If the transport is part of a different lettered formation (e.g., infantry is in B formation, transport is in C formation), then you can designate waypoints for it, too.

  Unit objectives will also help guide the behavior of the units. To use unit objectives, click on the blue flag button on the deploy screen, then click on the hex that is that unit's objective. To have all units use the same objective, use the green flag button. You may have to put back the unit that was accidentally placed on the all objective hex.

Using waypoints in defend scenarios can make for unusual defensive scenarios. Ross McPhail has written a brief description of how this can be done;

"I had a breakthough today when I found out that reaction turns and waypoints will work on a scenario setting of Delay or Defend. First, background: Germany v. Poland, German Delay, Poland Defend. Campaign scenario with Germany controlled by the computer. I wanted to make two units (1) a Pzk. III and some infantry units, and (2) a Pzk IV unit move a certain way. However, when I played the scenario the units would not move. I tried changing everything but nothing would work. I had come to the conclusion that these features would not work when the scenario setting was on Delay or Defend.
Breakthough . .
So, to try one more time, I went back to the Editor>Deploy>Headquarters screen. There I realized that the reaction turn was set for 99. I'm not sure if this is the case, but it seems the computer

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defaults to 99 when the scenario setting is Defend or Assualt. I then changed it to turn in which I wanted the unit to move. For example, my Pzk IV unit was set to 1 and the Pzk. III unit was set to 1 (it was a reinforcement unit anyway).
I then cleared all previous settings. I then switched all control settings to computer. Next, I set the reaction turns for all my units. Those that I wanted to stand hard were set to 99. Those which I wanted to "float" the battlefield were set to 1. As I noted earlier, the Pzk IV unit was set to 2.
For any unit that I want to move, I switched the stance setting to advance from defend.
I then set waypoints for my reinforcement units. They would manuever around and attack from a flank.
Finally, I set an objective flag for the Pzk IV unit.
I saved everything. Command/Control was switched on.
Success . .
In a computer v. computer test of the scenario, presto! The Pzk. IV unit remained in place until turn 2, during which it began to move slowly towards its objective. When the reinforcments arrived, they began to follow the waypoints for a flank attack. Everything worked perfectly.
It apprears from this initial test that this is how you make these functions work. If anyone has comments, questions, or if I'm all wrong, let me know. But this did work for me. And it seems that this could be used to construct a cul de sac type of defense, etc., for a scenario."

- **Scenario Location:** Take a moment and look over your work. If you are satisfied, save it and go back to the main editor interface. Here we will complete the final touches. Look for the "Battle Location " button on that page. You are in reality not naming the scenario. You do that when you save it. What you are dong is labeling where the action takes place. To include the location for your scenario, click on the "Battle Location" button in the main editor screen. The screen turns blue again at the top. Now type in the name of where the battle took place. Keep it short. The space to hold the name is limited. This name will then appear in the information window as the battle progresses during play.

- **Scenario Title:** Probably you have already given your scenario a title or an identifying name as you worked on it. You already did that the first time you saved it. But you may have changed your mind and want to give it a new name. Whatever you name it is what it will continue to use unless you change it when saving the scenario. You can include the name of a chief protagonist in the scenario (Rommel, Wittmann), its location ("Showdown at El Alamein"), or the battle itself ("Holding Clerveaux"). You have enough space to type in a reasonable descriptive type of title, but not a small book. Reserve that for your text file.

- **The Introductory Text:** If you want to modify this, use a plain text file, type the text in, and then save it with the same file name of the scenario (all scenarios have a file name of scen*** (* indicates numbers). dat. If your scenario is numbered "scen100.dat," then you save your introductory text as "scen100.txt" Once saved, start the game and click on the name of your scenario in the scenario list. Now read your text in the game to see if it meets your approval.

- **Putting your Work to the Test**: You'll want to test your scenario. One way is to set the computer to play itself, and watch what happens. Or, you can play one game as one side, and then a second game as the opposing force. Ask fellow gamers to test it for you.

If you have questions about particulars in scenario design, write the Raiders and ask. We don't have all the answers, but we may be able to help you with your particular problem. Don't hesitate. We consider it a privilege to share our limited knowledge with you in whatever way we can.

Visit the Steel Panthers website at The Gamers Net. The game is so good that we devote to sections to the game. You can go to Wild Bill's Raiders Design Section (**http://wbr.thegamers.net**), where we will be touching upon little hints or ideas for making a better scenario. You can also visit the Steel Panthers Arsenal Section. It can be found at **http://sparsenal.thegamers.net**.

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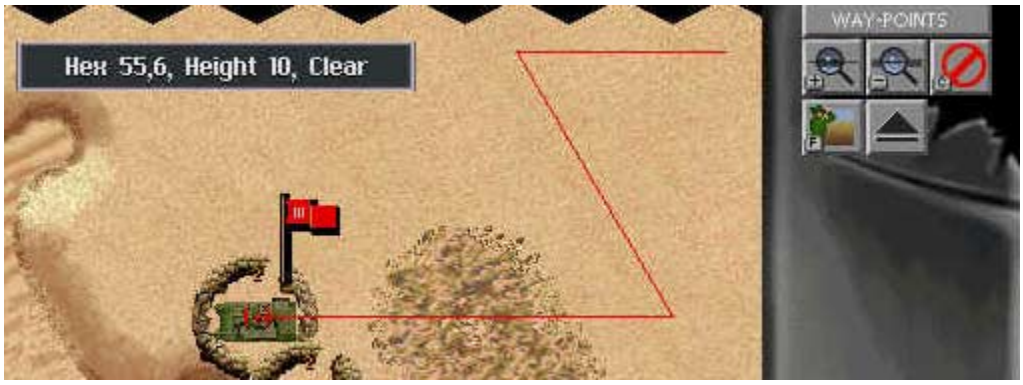
Working with Waypoints

By Paul Saunders



Waypoint setting is one of the arcane mysteries of Steel Panthers, and even after five years of experimentation I still don't know exactly how it works, but I have some theories.
1. Although units move from one waypoint to the next, they don't necessarily follow the straight line between the two. To take the forest alongside the road example, if you set one waypoint at the beginning of the forest and another at the end, chances are the troops would leave the forest, follow the road, then move back into the forest. You'd need to set multiple waypoints in the forest to try to force the troops to move through it rather than taking an easier route.
2. I've also noticed that there's a slight pause at each waypoint. The AI probably waits until all units of a formation have reached the waypoint before continuing to the next waypoint. I set 10 waypoints in a line adjacent to one another for a formation of armoured cars and it took them three turns to reach the final waypoint. Normally they could have reached that hex in less than one turn. Placing multiple waypoints close together therefore, can be used to slow down a formation's advance. You could use this to try to prevent fast units outpacing slower ones, or as a kind of pause, forcing a formation to stay in the same spot for a while. Unfortunately there are a limited number of waypoints so you can't use too many.
3. I've noticed that when a formation reaches it's final waypoint, it goes no further. On the contrary, I've just discovered that it moves back and fore between the final and the previous waypoint. This is a bit disconcerting. The best solution would be to place the last two waypoints adjacent to each other or even in the same hex. Of course, enemy units in the vicinity would probably distract them and prevent them from doing this, which might explain why I've never noticed this peculiar behaviour before. In my test, no enemy units were visible.
4. Waypoints also seem to take precedence over victory hexes. In the above test, I placed a victory hex very close to the last waypoint. The units completely ignored the victory hex, even though it was clearly visible, and instead continued to shuffle back and forth between the last two waypoints. The moral of this observation is that if you want the troops to capture a victory hex, make sure you set a waypoint on the victory hex itself.
Given the above quirks, it may well be simpler (and sometimes better) not to set waypoints at all (at least for some formations). That way, at least you know that they'll head straight for the victory hexes, albeit in a very unsubtle fashion. However, if you're aware of the above quirks you can use them to your advantage, giving you more control over a formation's route and behaviour.
For example, I've used waypoints to make MG's move forward to a position from which they can give good covering fire, but not to advance any further. I got pretty fed up with my MG's charging across open terrain to close with the enemy, when that's obviously not their forte. The final waypoint acts as a dead end to movement so they don't try to get any closer. Oddly enough, they stayed still once they got there, they didn't do any of that shuffling back and fore that I mentioned.

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Perhaps it was because they were too busy engaging the enemy. Encountering enemy troops does seem to modify normal waypoint behaviour somewhat.

Using Beach Assault & River Crossing Scenario Maps in SPWAW generated battles.

By Redleg

After much experimentation and trial-and-error, I have discovered a few things that may be useful in creating custom maps which are to be used in **generated** SPWAW battles. The procedures discussed are intended to help create maps that will work in generated battles and establish a procedure which will make it possible to use your scenario maps in generated battles.

Scenario Maps - Beach Assaults.
From within the map editor, click on the 1/2 beach icon. This may give you more water than you wish or a shoreline that is different than you want but SPWAW recognizes maps that are 1/2 beach are for beach assaults and will automatically provide landing craft for your assault.

If the map doesn't look like you want, it is easy to build up the shoreline with the various levels of terrain icons to achieve the desired shape of the shoreline and surrounding terrain. A map built entirely with the Deep Water icon will not be recognized by SPWAW as a beach assault. However, if the 1/2 beach icon is used first, you can use the deep water icon to fill in other portions of the map with water hexes and still get generated assault battles that work well. That is to say, SPWAW will allow the use of these custom-made maps. The exact steps to use are as follows:

To find out which side of the map your forces will be on, merely generate a battle using the appropriate month/year and forces and see how they are positioned. Do this before building the map.

For US vs German 06/42 (US on Right, Germany on the Left), here are the steps to follow
1. Go to the map editor.
2. Set the month/year, nationalities, and type of battle (Assault, in this case).
3. Click on the Random map button then click on the Edit button.
4. Don't like what you see? Press the += key on the keyboard and SPWAW will generate random maps each time the += key is pressed. I normally strive for a map without streams, preferring to put them in myself. If you read on, you will see that it is often useful to place a short, wide, river somewhere on the map. And if you wish to convert streams to rivers, you may wind up with wide rivers all over the place that will require land-fill.
5. Once you have a map you want to work with, convert 1/2 of the map to beach.
6. Edit the map as usual.
7. Use the techniques above to alter the shoreline and land mass, if desired.
8. SAVE the map.
9. Click on the Deploy Icon in the scenario editor.
10. Use the icon to edit Victory Hexes. Only concern yourself with location. Values won't work in generated battles.
11. Use the icon to place the start lines for both forces.
12. Save the scenario - I like to use the same name as I used for the map. (I confuse easily).

Here's the trick!!!! **Important**!

Exit from the editor without doing anything else. Go directly to the battle generator and make your battle.
SPWAW remembers the flag locations that were in use when you were in the scenario editor so

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you must remember to click on the Custom Map button before clicking on Continue. If you mess up as I often do, merely go back to the editor and reload the scenario and exit. Then re-generate the battle (I usually remember to click on the custom map button the second time).

Scenario Maps - River Crossings.
Like beach assaults discussed above, SPWAW also recognizes "wide rivers". When a wide river is on the map, SPWAW will magically produce inflatible rafts for your infantry. In addition, wide rivers offer some exciting possibilties for map-making in SPWAW.

If there is a wide river **anywhere** on the map - even a short one 3-4 hexes long, SPWAW will allow the custom placement of victory hexes and start lines where the players wish them to be. Canals do not have this effect on SPWAW. A width and course of a wide river may be altered by either building up portions of the river as discussed earlier or by using the Deep Water icon. If you don't want a river crossing but want to control the location of victory hexes and startlines, build a short wide river in an out-of-the-way location. I have often found a scenario with a map I liked very much but couldn't get the victory hexes and start lines properly placed in a generated battle. A very short wide river placed out of the battle area allowed precise placement of the victory hexes and start lines in just moments.

It is possible to create "meeting engagements" with all 21 victory hexes on one side or the other or even all 21 v-hexes in the center. Or v-hexes can be widely scattered. If you don't want 21 victory hexes, merely stack 2 or more of them on top of one another and the value of the stacked v-hexes will be multiplied appropriately.

Scenario Maps - Islands.
Using a combination of the above techniques allows the player to create an island or even more than one island which will work in generated battles. I recently made an island by creating a beach map and running a wide river North, another South and another to the East. Then I built up the terrain on the East side to give the appearance of an island off-shore. The landing craft are able to travel the water all around the island.

Final Note:
Be sure about the direction the attack will come from. In 1943, the US attacks from the Right (West) side of the map - always. In 1944, the US attacks from the Left - always. Almost any map that works for the the US will work for UK, Canadians, their allies. If you set up the map with reversed sides, it probably **will not** work.

How to Convert SP1 Scenarios into SPWAW Scenarios

By Ross McPhail

Currently, there are over 300 different scenarios for the original Steel Panthers game. In fact, several new scenarios were posted in the last few months on the Wargamers website. What follows is a step by step process for transferring these scenarios to a SPWAW format.

Tools

You will need three tools to accomplish this task. (Actually, you will only need two, but the third makes the final editing changes that much easier). You can get these tools at Fred Chlanda's website at www.freds.webprovider.com. (A special thanks to Fred for taking the time to make these tools; a task that he makes appear so effortless but which is far beyond the capacities of people like me). These tools are:

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1. SP1toWW2 A tool for converting SP1 scenarios to SPWW2 scenarios.

2. WAW Map A tool for converting SPWW2 maps to SPWAW maps.

3. WAW Ed A tool for editing SPWAW scenarios. This makes changes easier.

Process (General)

This is for those who already know how to use these tools and would like to jump-start the process. There are two steps to the process:

First - you convert the SP1 scenario into an SPWW2 scenario.

Second - you convert the SPWW2 map into an SPWAW map.

Third - you make editorial changes as necessary, deploy your units, and make other changes as necessary.

Essentially, what you're doing is changing the map (that part of scenario design which usually takes the most time) to SPWW2 map and then to an SPWAW map. You then follow the original scenario (or the SPWW2 scenario) for purchasing and deployment.

Time

It usually takes between 2 to 4 hours to completely convert a scenario. It may be faster as we get better at it. I know . . . its not fast and quick, but it is faster and quicker than doing it from scratch and it works until Fred comes up with another genius program. However, any conversion (even with a genius) program is going to take time due to the significant differences between SP1 and SPWAW.

Step by Step Instructions

(Start with a scenario with a few units per side).

Assumes you have already downloaded and installed the latest versions of Fred's tools.

CONVERTING FROM SP1 TO SPWW2

1. Identify the scenario you wish to change and put it in a separate folder. This will make things much easier - trust me. There should be three files (scenxxx.dat, scenxxx.cmp, scenxxx.txt).

2. Open SP1TWW2 (SP1 to WW2). If you have not used this tool before read the instructions first! I am merely going to explain how to use it; to fully understand the program you need to read Fred's notes. Make sure the translation file is loaded. It is the file named OBLST.txt. If you see German tanks on the translation table, you are there. If it is not loaded, click on the "Load TF" button.

Understand that the table will "translate" SP1 units to SPWW2 units. Therefore, there will need to be a unit name in under the column titled SPWW2 name. If it is empty, and the unit is used in the scenario, you will have to load the unit later. For now, just be aware of it, but don't worry about it.

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3. Click on the convert button. This takes you to the scenario conversion screen. This where you will actually convert the scenario.

4. Click on the "SP1 dir" button. This will load the directory with the SP1 scenarios in it. DO NOT OPEN THE "SCEN" FILE IN YOUR SP1 DIRECTORY. Instead, click on the special directory into which you pasted your three scenario files (step 1). If you did not do step 1, do it now. Believe me, you may save yourself grief.

5. Click on any of the three files. The scenario name should appear in the Scenario Conversion dialog box. Click on the name as it appears and then click on the "Load SP1" button. This should cause the scenario to load (i.e. the name appears above the list).

6. Now click on the "SP1 units" button. Another dialog box should open for saving the list. DO NOT SAVE THE FILE IN THE SEPARATE DIRECTORY YOU JUST CREATED. (If you do, you'll save right over the scenxxx.txt file). Instead, save it into the SP1TWW2 directory; naming it scenxxx.txt. I find that I actually have to type the .txt suffix in the name prompt at the dialog box in order to get a text file.

7. Now you have a complete list of all the units in the scenario. If possible, print this out as it will be invaluable in purchasing and deployment later. Note if there are any units that have an * by the name. These are units whose SPWW2 names do not appear on the translator table (remember that the SPWW2 names have to be on the table to convert the scenario).

8. Now comes grunt work task number 1. If you have any units with an * by the name, go open your SPWW2 game. Go into the editor. Set the appropriate date (as per the SP1 scenario you are copying) and identify the countries. Save the scenario. This will be the blank scenario that you convert onto. Do not load a map. Name the scenario "blank" or something equally conspicuous and save it in a number you can easily remember (100).

9. If you have any units on your list marked with an (*) you will need to buy one of those units (or however many, but you only need one). You may have to exit the program and load the scenario you are converting (the SP1 scenario) to make sure you have the correct units.

SUGGESTION: Here is where it gets much easier (and faster) if you have two computers, such as a desktop and a laptop. You can load SP1 on one and SPWW2 on the other. However, you don't have to have it and I did my first two with just one computer.

You need to buy at least one unit for every TYPE of unit with a * by it. The easiest way to do this is to use the unit number next to the nationality to make a list of units you need.

10. Once you have purchased sufficient units for each side, save you scenario again. Now, go back to the SP1TWW2 program. You want to be at the translation table (that dialog box with the convert button). There on the front is a "Load SS" button (load source scenario). Load the "blank" SPWW2 scenario with the units you just purchased. The units should appear in the box under "Scenario Units."

11. Now find the corresponding SP1 unit. It may take some searching. (Here's a hint: for Germany, many of the unit numbers are the same. This is not the case for other countries; you will have to search and find the appropriate unit).

Note that not all units will correspond nicely. After all, there are more units in SPWW2 than in SP1. I suggest picking the closest unit with the least amount of extras particularly for infantry units). You can always change them later if you choose and the goal right now is to get the scenario to convert.

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12. Once you have found the corresponding SP1 unit (example # 111, SO SMG Sqd) click on the unit number, then click on the SPWW2 unit, then click on the arrow button at the bottom. SPWW2 name should appear in the blank (SMG Squad). Once that is done, the unit can translate. If you make a mistake, hit the erase button, but be careful.

13. Once you have named all the * units (basically, the * means there is no SPWW2 name for the unit), click on the "Write TF" button. This will save the changes to the table, and will save you time in the future (as more and more units will be named).

14. Go back to SPWW2 and open the "blank" scenario. Delete all the units you purchased. Save the scenario. This will now be your blank to transfer your scenario unto.

15. Go back to the scenario conversion screen. Go to your SPWW2 directory and load your blank scenario.

16. The moment of truth. Now click on the "convert scenario" button. If you get an error message with a unit number, it means that you overlooked a unit that needs to be translated. Otherwise, the "Save SPWW2" button will activate. Save directly over the blank scenario.

17. You now should be able to go to SPWW2, open the scenario and edit it or play it, as you wish. Hint: if you wish to keep the scenario for SPWW2 purposes, I suggest opening it in the editor, saving it under a different number, so the easy to remember number can be your blank file for future scenarios. Don't forget to copy the text file (scenxxx.txt) into your SPWW2 scenario file.

18. Okay, you should have a SPWW2 scenario of the SP1 scenario. If you made it this far without errors, congratulations! The hardest part is truly over.

CONVERTING THE SPWW2 MAP TO SPWAW.

19. Okay, now you will need to close everything. Go to SPWW2 and copy the three "conversion files" (again, scenxxx.dat, scenxxx.cmt, scenxxx.txt). These should be the three files that relate to the SPWW2 scenario you just converted. Copy them to your separate folder (you can copy over the SP1 files since you have originals in your SP1 scenario file -- see how important this is?).

20. Open the SPWAW map editor (WAW map). Under Files>Load WAW Map> load the CLEAR_MAP or the CLEAR_MAP1 file. These files should come with the WAW map editor. It should be a flat clear field.

21. Next click on Convert>WW2 2.x map. Find the separate file and click on the .dat file. Presto. You should have a complete SPWAW map of the original SP1 map.

Clearly, this system would be faster if I could get the WAW map editor to copy for SP1 maps, but I cannot get that to work at this time.

22. Save your new SPWAW map.

DEPLOYING UNITS, ETC. (or the grunt work, part 2).

23. Because there have been so many significant changes between SP1 and SPWAW, you may want to edit the map a little to make it more realistic (and take advantage of new features). Also, the conversion process may require you to do some editing.

24. Deploying units. The fastest way (if you have two computers, is to load SPWW2 on one and SPWAW on the other and just copy the OOBs for the scenarios. Otherwise, you will have to

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toggle back and forth. You will have to deploy the units by hand, but the list that you printed out from the SP1 scenario is helpful for jotting down coordinates and unit numbers. You may want to edit units (after a playtest or two) to reflect the changes in SPWAW. You will find Fred's WAW Edit a tremendous tool for quick and fast editing.

25. You can copy the scenxxx.text file over and you're done!

Okay, I understand this is not the easiest process, but once you've done it a couple of times, it actually goes a lot faster. A small scenario should take you a couple of hours . . . a large one can be done in an evening. I have copied a medium sized scenario 30+ units per side, made significant changes in the map, deployed unites and was ready to play in about two hours.

I hope this helps. Perhaps in the future, Fred will work his magic and turn out a program that will make this easier. But until then, this has worked for me

DESIGN YOUR OWN CAMPAIGN

SP:Waw has extended its user campaign capabilites to allow for branching to multiple follow-up scenarios based on your level of victory in the current one. Campaign designers are no longer limited to 12 scenarios that always proceed form first to last in order.

A Whole New Ballgame!

Now combining the new victory conditions with the ability to give the players a variety of paths to victory based on their performance, branching through up to 999 scenarios asdesired, to provide the savy scenario and campaign designer a new toolbox to create ever more challenging situations for players of all ability levels. While that may seem a large number of scenarios, this allows for setbacks and variations where you take a core group of 8 or 10 scenarios and create a number of variants based on the path the player takes to get there. Failure to get unit off the map early may mean larger enemy forces down the road, or a total failure may mean going back and battling a second time on a map already fought over.

Conceive the "Big Picture"

There are any number of ways to think about the course of a campaign, but if the designer envisions the scenario maps as a sequences of positions, then the victory conditins can be viewed as "advancing to the next map location" or being pushed back to a previous map location as the player achieves victory or suffers defeat, so a great many scenarios which use the same maps and making assumptions about the "big picture" deployment of enemy forces, can be made from 8 or 10 maps and how the designer envisions the enemy would deploy his "force pool" of units as the players fortunes wax and wane. Thus a large number of situations can be devised, without creating vast numbers of "independent" scenarios, though that can still be an option!

Storyboard it!

These should generally be considered "branches" from a main story line sequence of events for say say all marginal victories. If you want to send a player back to a scenario, rather than "looping" back, put the same (or a minor variant with a slightly different date so the player doesn't think he is in a time warp as well!) into a separate scenario slot so the player will not get caught in an endless cycle. The best way to visualize this is with a "storyboard". Lay out on a piece of paper the "boxes" representing the flow of the main "plot line" with a short scenario description,

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location, victory conditions and notes on how this fits into the “big picture” of the battle you are portraying. You want the player to get caught up in the story line, so the a sequence of marginal victories punctuated by the need for a decisive to “advance” at a few key nodes is the best starting point. This should be something like 6-12 main battle locations.

Your storyboard will likely look like a main rail line with numerous “sidings” the player is sent onto, either as a shortcut with potential big payoffs, or as a “get well spur” where recovery is nurtured (but not coddled!)

A careful balance between challanging the player and frustrating him is needed. Defeat should mean revisiting battle locales a second time in variant scenarios, but not “lock the player out” too early. A string of decisive defeats should cause early “sacking”, but a single bad day should not doom the player from the outset. The storyboard is useful for tracking these “sidings” the player can be forced to go down to redeem himself, before “re-entereing” the main flow of the plot line.

Critical to this is proper allocation of Build, support and reinforment points. Build points are the initial buy points the player gets, and the allotment for “fixing” he gets there after. These are “use ‘em or lose ‘em” and should be set with the players “track” in mind. If on a path from an early string of decisive victories, these should stay low, maybe 10% of the players initial force. If the player gets off on a bad foot, these should be assigned higher (15-25%) to help nurse the player back to health if he succeeds in getting back on track!

Support and reinforcement points are used by the player to purchase supporting units to help his effort, while acting as “fodder” at times to protect the core force. Support points are used during the buy phase, before contact with the enemy, reinforcement points are used during battle to overcome a setback, or fill a gap in unit purchase, like AA or AT guns, transport or airstrikes. Note that using reinforcemets awards victory to the enemy (25% of what you spend on reinforcements) so it can casue you to be “locked out” of getting a deceisive victory. Also, the default number of reinforcement points is always 20%, unless you override that by dening them (with a 1 in the reinforcement column) or assing a specific number. Note that SP:WaW scenarios can use “Auxillery” troops, so the scenario designer can include supporting forces the player has no choice in selecting. The player should be made aware of the options available.

The other important thing the storyboard helps avoid is forgetting a scenario, because once you get a long way into the numbering scheme – it’s a major pain to try to “insert” a forgotten scenario. For this reason it’s a good idea to make full use of the 999 slots and start with using every 3rd or 5th slot so you can insert good ideas that you come up with after your story board is done <BG>.

Crucial to the storyboard process is to track the camapaign points you want to use for each type of victory, and the total required for various levels of “campaign victory” as this is fixed at the outset. You don’t want to too easy to get a “decisive victory”, or to have it “stuck” around a draw for most outcomes. This is especially important for “sidetracks” as you don’t want a player to necessarily be rewarded with more total camapign points for screwing up (even if he redeems himelf) than for brilliantly achieving decisive after decisive victory! A sidetrack may be “stacked” against the player however so he might only be able to achieve a Marginal victory or even draw until he returns to the main line. Creative use of the new variety of victory hex types, together with weighting the players troops victory value with the V+ key to multiply them by a scale factor, can create a wide range of possibilites in innovative and FUN campaign play.

Check the Details – Then Check Again!

In campaign play, the human player is always “Player 1”. If you use a scenario where the human is player 2, then the routine will remove the AI’s forces and replace them with the players campaign force. Never use scenarios with player higher than 2 (ie if you are usig a transplanted multiplayer scenario, always go in and edit the forces back to players 1 and 2 only.

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Also make sure the forces show up on the proper sides of the battlefield. Use the “switch sides” button in the scenario editor to flip flop this if desired. This is usually only an issue if you have the player fight as different nations over the course of the campaign. Always insert a new scenario into its “own” campaign slot first to double check the side and unit replacement as you prepare the major scenarios. Once you have the “featured set” you can make variations of troops and placement – just be careful – save and test often!

User Campaign Editor

To start editing – choose EDIT CAMPAIGN after choosing “PLAY SP:WaW” from the intro screen. Then click on the scenario slot you wish too edit. Campaign files are saved in slots like scenarios, so like scenarios, if you load a new campaing into the same slot as an existing one, the old one will be overwritten with the new and lost – SO BE CAREFUL IMPORTING NEW CAMPAIGNs!! Check the file names to make sure you are not loading one into a slot you have already used. Slot is determined by xxx in the the initial ucampxxx.dat and in the scenarios as cxxxsyyy where xxx is the campaing slot number and yyy is the scenario slot number within the campaign. The ucampxxx.dat contains the info on how the scens all link together.

The layout of the editor is similar to the SP3 editor. The main campaign selection screen allows you to select which campaign you wish to work on. Left or Right click on a slot to go to the design screen. Clicking on “New Campaign” takes you to the lowest slot that has not yet been used.

Naming Campaigns

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Upon opening the campaign design screen by clicking on a NAME slot, that slot is given the default name of “Unnamed Campaign”. You can change the name with the “NAME CAMPAIGN” button Most interaction is done by clicking on the the green input areas (they turn yellow when they are “hot” to let you know what you are about to edit if you click). If you click with the left mouse button a dialogue opens to allow you to edit the value there. Right –clicking opens a text editing field to edit the text message associated with that field. If a text edit is not appropriate, then Left and right clicking act the same.

Campaign Text

The three columns between the Victory Level column and the Scenario Name column are where Campaign Text can be added or edited for the campaign introduction, win, and loss messages. Left-clicking when one of these items turns yellow presents a pop-up dialog box where text can be entered to appear at the beginning and end of each scenario in the campaign.

This is where you should prepare your players with information about the scenario they are about to play such as strategy suggestions, notification of reinforcements and any directives from the high command. This tool allows the campaign you create to be more than just a group of battles strung together at random!

Select Nation

This button allows the selection of a nation to represent the player in the campaign. This determines the choices of equipment available to the player, since all Core formations are purchased at the start of the campaign. The nation chosen also affects the troop quality and other ratings associated with each individual nation. Going into the Preferences screen can change these settings from the Nation screen. Exiting the Nation screen returns to the Campaign Editor screen.

Note that the start date setting affects what equipment and formations are available, as well as which nations can be played.

Build Points

Left-clicking this button opens a pop-up dialog box. This is where the number of build points is entered to set the limit for purchasing Core units at the campaign’s start.

Start Date and End Date

The up-and down-arrow buttons can be used to adjust the Start Date and End Date controls. These settings affect what equipment, formations, and nations can be selected, as well as factors such as troop training and quality.

Choosing a Nation

The nation the player is fighting as is selected using the NATION button. You can switch this “in mid stream” but its not advisable as strange things with the side the players units show up on can cause problems. Better to change the country in the specific scenario than using this button.

Campaign Victory Points

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Before you start “wiring up” the campaign up, make sure your story boarding effort has convinced you of the points to award for each victory and the total points threashold for the various levels of campaign victory. At the bottom of the design page are inputs for each battle result under “Campaign Victory Points”. They can be from 0 to 9999.

Campaign Results

When the player achieves the particular result in a battle, that is the point award in “campaign points” that will accumulate. At the end of the campaign, the player’s total campaign points is compared to the required levels input under the “Campaign Results” categories, if equal or greater, then the player achieved that level of victory. Click on the number to change the threshold as desired, up to 9999. The proper awarding of points is crucial to the players perception of whether the camapign is “good” or not. If most battle are won, and quickly, the player should get high points, but a player who suffers early on and has to slog it out, should be able to get a marginal “the hard way”.

Wire it up!

The meat of the design screen is the results grid – the array of “cells” where you input the scenario number of the scenario the player is sent to when each of the 5 results occurs. Left click on the result cell and enter the appropriate scenario number for that columns degree of victory. Then right click to enter the text associated with that result (displayed just before the chosen scenario starts.) Make sure you fill in each possible result, even if the same scenario is the result of multiple outcomes.

Each Campaign starts at scenario 0. The Player needs Build Points to buy his core force! Assign that in the BUILD column. Then assign SUPPORT and REINFORCEMENT points as appropriate. These are all “hard wired” numbers that will be used regardless of what the player. DO NOT enter negative numbers! The player is not forced to spend all the points if they want an extra challenge!

As you follow your storyboard “connect” the appropriate chain of events in sequence, laying the side tracks out in sequence by filling in the appropriate scenario numbers in the results grid. After the primary track. You will see why we left so many slots! Leaving gaps between and having maybe a half dozen different “side track” branches can add up to many slots quickly!

Finishing Touches!

Left clicking on grid cells and scenario names will bring up a text edit box that allows you to edit the text description that appears when you start the campaign, and as you go to each battle. You also start these files using a text editor like notepad.exe, then use the inline editor if you need to add anything as you go. These files follow the same naming convention described previously. The campaign intro text is Ucampxxx.txt. Ucamp000 is the first slot, Ucampoo1 the second and so on. The individual scenarios introductory text files are labeled cxxxiyyy.txt. You can also include a cxxxiyyy.wav file that will play when the scenario starts. The scenario result messages are indexed by result cxxxbyyy.txt is the decisive defeat message, changing the middle letter to “c” makes it the marginal defeat message, to “d” the draw message and “e” and “f” are for marginal and decisive victory respectively. You don’t have to have these messages, but it adds a lot to the user’s enjoyment of the campaign! The control characters used in scenario text files are usable here, with a new line skipped using the “*” and “_” not being displayed and useful for aligning text.

Now all you need to do is look for the Ucampxxx files with the correct number and the corresponding cxxxnyyy.dat, .txt and .wav files, and zip them up into a zip file. Users need only extract those files to their CAMPAIGN folder to enjoy your effort!

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FAQ

This FAQ is to be used as a quick reference. It primarily focuses on the features of the game unique to SPWAW. For more detail, look at the manual. Thanks to Paul Vebber, Bill Wilder and many others who contributed.

Questions about playing the game

Q. How do I get my units to move? They show ready but will not go anywhere?

A. The default game setting is to have “Command and Control” on. This limits movement options. Check the Command & Control and Unit communications settings. If the unit is out of range and has no radio, It will only move to the unit objective. To make it easier the first time you play, turn Command & Control off
1. Check preferences menu. Is command control on or off? If on, turn it off. Read the manual about how this feature works.
2. Is your unit set to advance or defend? Right click on the non-moving unit. If it says defend in the black screen, click on the word, Defend, and it will change to advance. Now it should move.
3. Is your unit suppressed? Does it have move factors left? Right click on the unit. Does it have move factors remaining? What is its suppression level? Anything above 5 suppression might pin or suppress the unit so that it won't move.
4. Can it move? Some units have no move factors. Check and see

Q. The all formation button is gone. Do I have to move my units one at a time?

A. Use the A key to use the All-Formation command. It will only work with C & C off or if the units have been assigned objectives. Another way to move all units is;
1. Be sure Command-Control and Move Radius are turned on in the preferences menu.
2. Type a semi-colon. Then click on the hex where you want the formation to go. A blue flag will appear.
3. Click on *0 (leader) of the formation you want to move. The move radius of that leader will be highlighted.
3.5 Type now the "A" key.
4. Click on a hex within that move radius where you want the formation to go.
5. You will see the entire formation go toward that hex.
6. A word of caution. Units may end up in mud or marsh hexes. They may not choose a path you would have chosen for them individually.
Such a move (all formation) may be costly to you. Your units may wander into a path of enemy fire.
7. This feature (just as C&C) currently does not work in the larger maps. (Maps above the standard three sizes in SP)

Q. How do I turn off the Opportunity fire confirm feature?

A. Go to the preferences screen and set the Opportunity fire confirm time to 0. This will shut the feature off.

Q. How do I know which units are in a formation and are mine?

A. Units that belong to the same formation as the unit that you have selected are colored yellow. This helps you to keep your platoons together as a cohesive fighting force. Another reason for

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playing with command control on. Units that are red are others of your army. Those in white are the enemy. Those that are silver are the enemy in your LOS. You can also turn on ID flags in preferences.

Q. After an artillery barrage, I cannot find my infantry. They disappeared.

A. . When suppression gets too high, you have abandoned infantry, or more accurately out of contact infantry. When you look at your units, you can immediately tell who is very, very bad off, because the number or the "+" is gone. Click on the hex and they will appear

Q. What do the "" and "#" represent in the unit description on the lower left of the screen?*

A. # is the fired on/movement reduction indicator, indicating the unit has been fired on. Movement is also reduced for two turns after the unit has been spotted or fired at (indirect fire counts)
* indicates that the unit has been spotted, or has not been moved since being spotted.

Q. The information window in the upper RH corner is black.

A. You are playing a V1 scenario. It needs to be upgraded to v4. To fix an old scenario:
1) Load it into the editor.
2) Change the weather from what ever it is to some thing else.
3) Change it back again. The routine that was called, resets the weather picture.
4) Changing the weather will most likely change the visibility. If so, change the visibility back to what it was before you changed the weather.
5) Save the scenario.
6) Exit the editor and play the scenario.

Q. There is no move radius on the unit I clicked.

A. Do you have move radius turned on? Is it a daylight scenaeio and you have already moved the unit? Is command & control on? If you still have movement available and the unit is surrounded by a dark area then you are using the default Option B in the Move Radius preferences

Q. Setting up quick battles. How can I set the buy points?

A. Go to the preferences screen.
Click on the "Battle Points" area.
Choose the number of battle points you want.
Exit the preferences screen.
Go to your battle menu. The number of points are now set for Player1 from your choice in the preferences screen. Player2's points will be derived from the amount you set for Player1. However, you can also set the battle points for Player2 in the preferences screen at the same time you selected them for Player1 using the same procedure.

Q. I do not like the way the countries like Italy or China play. Is there an easier way of changing their characteristics than editing the OOB's?

A. The "national characteristics" are linked to the "flag country" ie the initial country you choose when you buy your forces and are "transferable". . Do you want Italians that can go "fanatic" like the Russians on defense? Set Country training off, up rout/rally, select Russia as your country, then hit "nation" to switch OOBs to Italy! DO you want "hold to the last man Germans in Berlin? Start with Japan and switch to the Germans. Now you get Butt Kickin Italians on a fanatical defense or Germans who "don't give an inch" of their capital. (You just have to change the name of the HQ and live with the fact you get Russian, or Japanes flags when you take the bjective...and its best to use a custom map or you may end up in a weird locale...

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Q. How do I bring in reinforcements?

A. Use the F4 key to bring in your reinforcements.

Q. How do you destroy abandoned tanks and guns?

A. Move your attacking unit into the same hex as the abandoned unit for 1 full turn. At the end of the turn your unit will destroy the abandoned unit if it passes an experience check.

Q: why can't I ever use my 50mm mortars even though they are on the indirect fire list?

A: They have to be in communication with their platoon HQ (“0” Unit) and the Platoon HQ is used as the spotter.

Q. Some of the vehicles and tanks do not have a “+” in the center.

A. This lets you know the vehicle has been abandoned.

Q. How do I deploy parachutists and gliders?

A.To use Gliders and Paratroopers. load the troops and assign each a hex, during deployment. In the pre-game bombardment phase, after the artillery attacks, the gliders and transport aircraft should come in, under AI control

Make sure you assign entry and exit directions for all gliders, strike aircraft and transport aircraft, especially when making a scenario. Do not depend on the default

Q. How are HQ’s and Ammo dumps and Ammo vehicles used?

A. For resupplying your units, move your unit into the same or the adjacent hex. HQ’s give additional morale benefit to units within 5 hexes and reduce suppression

Q .Can I put my units under computer control during the game?

A. Yes you can set waypoints DURING THE GAME and place your units under computer control. Go to the HQ tent icon and click on the waypoint icon and then set unit to computer control. This is useful in big scenarios when reinforcements come in and are well behind the front lines, Waypoints put them under computer control and they automatically move at the end of the turn

Q. Minelaying has changed. What is the new procedure?

A. To lay mines, use the toggle in the unit data screen. In the old code, you could toggle "remove mines" with "do not remove mines". There is now a third toggle, "place mines".

Q. How do I remove Dragons Teeth?

A. Place an engineer unit in the adjacent hex. It will remove the obstacle within 2 turns.

Q. How do I breach a wall or hedges w/o immobilizing my vehicles?

A. Use engineer units to direct fire on the wall (Z key) or use artillery above 105 mm by direct or indirect fire.

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Q. How do I blow up a bridge?

Same way as a wall or hedge. Make sure you are not cutting off a line of retreat or advance because the procedure is irreversible .

Q. How are Special Forces and Guerilla's employed?

A. Special Forces and Guerilla unit may be assigned infiltration hexes during deployment. Click the Commando assignments button. This will evoke a pop-out screen that has a list of all eligible units, similar to the artillery assignment screen. The special troops you purchased should be listed here. Select a hex on the map and click it. Then click the little lit up circle next to one of the special units. This should depress the little circle icon, as it would if you were targeting artillery. One you have assigned hexes to all the special units you want to infiltrate, you may close the screen. You will note that machine guns, mortars and the like cannot be sent on infiltration missions. These are for troops traveling light.

Play the game. After several turns, you should get a pop-out box saying that one or more units have infiltrated to the assigned target. Note that the exact turn they will arrive is unknown to you and you will not be in contact with them, until they arrive. This may place certain units of the formation who were not able to infiltrate, out of C&C, unless you keep them near a company HQ or the Bn HQ. Play testing may show a need for shuffling of the special formations.

I would not recommend that you choose objective hexes for the target hexes. Your troops will arrive piecemeal and get beat up. I would recommend a nice, out of the way clump of woods not to far from an objective as a rally point. Once the whole platoon arrives, you can then attack.

Q. How are Commandos, Gliders, and Air Drops employed?

A. When you now play scenarios or campaigns, these features may be included, depending on the scenario. All three features work basically the same way. They are assigned using the buttons in the deploy screen and set up like artillery fire targeting. If the scenario includes gliders or airdrops the parachutists will appear at the beginning of designated turn and gliders will come in and land. These features work in the same way as artillery barrages or air attacks. If it is an airdrop, the transport aircraft will fly across the screen, dropping their human cargo in or near the designated drop zones.

Weather and enemy opposition can affect where these units will land. In some cases, they may continue off the map. If that occurs, these units are considered to have been dropped or to have landed out of the area of battle for this scenario. They will be unavailable.

If a glider hits a tree or a building, it will crash and transported casualties will occur. All landing units will be in varying states of suppression. This is determined by their basic morale and skill values as well as just how close an enemy unit might be to them. Thus they may be ready for battle, or it may take a turn or two for them to become oriented and get down to business.

Commandos will appear at varying turns, usually on the enemy's side of the map. They are Special Forces and have special skills at demolition tasks. The scenario designer has predetermined their hex of entry and mention of their presence should be in the introductory text that accompanies the scenario.

Q. What are gun teams and pack mules used for?

A. Gun teams haul guns. So do pack mules. More realistic than tons of trucks and half-tracks, at least for the Axis side and the minors...and Russia.

Q. What is the Victory Frontage button in Preferences for?

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A. The victory frontage option changes the arrangement of victory hexes from the "old" 3 groups of 7 to 5 groups or 4 (or so).

Q. What is the Limited Intel Button for?

A. Limited Intel create the aspect of “Fog of War” in the game. With this option on you will not have numbers of men shown on enemy squads. The routine makes you "reroll" all your sighting checks every turn. (i.e. the enemy is not static, but moving around within the hex...) so you can "lose target lock" on enemy units (but if a unit had them targeted they can still shoot - new units just can't and it doesn't appear on the map.

Q. What is the AI advantage button used for?

A. This number gives the experience/morale rating of the troops as compared to their intended morale. IIRC Germany had a 75 point (average to vet) average on experience in '42, so at 133 percent they should have about 100 points (elite)

Q. What is the Characteristics button for?

A. This is to turn on or off the National characteristics of the different countries, such as Italians retreating quickly or Soviets defending fanatically.

Q. What is the Historic Ratings button for?

A. This sets the different countries morale and experience levels to their approximate historical levels based on the year. To set troop Quality manually this must be turned off.

Q. Why is there a Limited Ammo / Reduced Ammo Button?

A. The limited ammunition button is a three-way toggle. It runs from reduced ammunition (combat loads) to limited ammunition (amount shown in OOB) to unlimited ammunition (ammunition is not reduced, when round is fired).

Q. What do the Artillery buttons in Player preferences do?

A. These buttons work like the toughness buttons. Raising these above 100% improves the artillery effectiveness and lowering them decreases effectiveness.

Q. What is the “True Troop Cost “ button for?

A. This button is used to cause troop costs to be generated using the unit’s experience as the measuring factor over standard cost. It is designed for a 2 player game for creating an even battle with balanced points .

Q. What is the ID Flags button for?

A. This turns on and off the unit ID tags which are minature country flags

Q. What is the OP Fire Confirm button for ?

A. This controls the amount of time you have during your opponents turn to decide if you want to take a shot at your opponent. The default is 5 secs. This feature can be turned off by setting to 0.

Q. What is the Time Out button for?

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A. During Internet game the gamers can decide how many “Time Outs” each side is to get.

Q. What is the Command Intervention button for?

A. During an Internet game gamers can set how many “Command Intervention” points are giving per player.

Q. What is the Vehicle Reliability button for?

A. This gives the option of vehicle breakdowns happening when travelling over rough terrain at high speed.

Q. What is the Weapons Reliability button for?

A. This gives the option of weapons breaking down especially during high opportunity fire usage. Some weapons can be repaired during the game. A country equipment modifier that can increase or decrease the chance of breakdown also affects all breakdowns. Unit experience can also increase repair of a damaged unit.

Q. What is the Reduced Squads button used for?

A. If on, this simulates men on leave, runner duty, sick call and so forth. The effect is some of the men are not present for the battle. The number of men missing depends on the number in a full unit and may run up to one third the maximum men.

Q. The gray text box messages are too slow or too fast. How do I adjust the speed?

A. Go into the Preferences screen and adjust the message delay up or down. The higher the number the longer the delay .

Q. How do tank or other crews bail out voluntarily?

A. Use the 9 key and a pop up box will ask if you are sure.

Q. Why is that sometimes the firing unit cannot see the targeted unit, but is still targeted on it?

A. The limited intel button is on and this is a part of its features to give the “fog of war”, some units become "unsighted" after being fired at.

Q. Why can’t I see the number of men in the enemy squads?

A. You have Limited Intel turned on. This is part of its Fog of War routine.

Q. Why are my defending units not “dug in” anymore?

A. The “Dug-in” entrenchment state has been renamed “in cover,” to better describe the state achieved by units in “defend” stance that deploy to best defensive advantage in a hex. View the “defend” stance as the order to look in the hex for the best defensive positions and fields of fire. It may take a couple turns to successfully complete, as an experience check is required to accomplish attaining “in-cover status. In Delay or Defend scenarios, engineers will speed this process.

Q. The hit percentages in targeting do not always seem accurate. It can be either too high or too low

A. That's all part of the 'fog of war'.. Usually they are in the neighborhood, but sometimes the actual chance of a hit can be much higher or much lower . Just before firing at a target the game

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runs a series of experience checks for your unit. If they pass them all, you get a nice boost in the % to hit. If they fail them all, you get a big reduction in %..

Q. What do the categories mean in the Encyclopedia Screen for an individual unit.?

A. "ACC"= Accuracy of the weapon, the higher the number the more accurate it is. Basically the range at which you have a base 50% hit probability before any modifications. Good to know, for example you might have two 88mm guns to choose from one might be more accurate than the other. Note that the editor will show 4 times the "real value" - a hold over from SP3
"Kill"= This is the relative lethality of the weapon. Important, new types of rounds have been added.
"Pen"= Penetration. You will see two numbers here. The HE (high explosive) number is the max thickness in mm and is compared agains the ebase armor at the closest range it will pierce. AP (armor piercing) is approximate penetration in mm (+/- a handful of percent).
"Heat"= high explosive anti-tank. This round uses the effect of a "hollow charge" explosion to send a molten slug of filler material through the armor. It is compared to the "geometric thickness (base/cos of compound angle)
"APCR"= Armor piercing composite rigid. This represents Armor piercing discarding sabot (APDS) as well. It uses a different routine than AP to determine "effective armor thickness" it is more effected by ange than AP.
"Range"= Max range of the weapon according to the type of round fired. You will see two numbers here. Ok this is where you need to take a look the unit stats, by right clicking on the unit once bought. The chart showing range, type of round, and armor penetration. Notice the difference in range for each round, it isn't so important to memorize this as it is to know that the AP types have a shorter range. Note that the editor will show 4 times the "real value" - a hold over from SP3
"Warhead"= This affects HE casualties, and HE effects on tanks, when a tank is hit, this number is a key determining the severity of the damage
"Survivability"= The higher the number the better chance it has of surviving the rigors of battle.
"Rate of Fire"= It is an average fire rate for a veteran unit. Elite would be higher, green will be lower.
Fire Control = A base number is multiplied times fire control and added to your hit probability, so the higher the fire control, the better your hitting percentage will be.
Range Finder= This plays a role in how badly your initial shot is degraded and how quickly the subsequent shots "ramp up" to normal. It also plays a role in your ability to hit moving targets.
Targeting = This is mostly used in post WW2, but some WW2 tanks had some stabilization of the gun. This represents the ability of the unit to engage an enemy quickly form the short halt, a combination of manuevering the hull and turning the turret, having sufficient crew in the turret to do all the jobs that are necessary quickly, etc. This affects the hit proability, and how fast the number of shots decays with movement."

Q. How do morale and experience points translate into combat capability?

A. The higher the points the better, with 70 being the average, it breaks down as follows;
Morale
40 or less -. Usually turn and run after a shot or two. Very difficult to rally.
40-54 - Conscripts, they really don't want to be there and will look for a chance to break and run (or hide)

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55-64 - Green, lower on the scale, very green.
65-75 - Average, seen some combat, endured some artillery barrages, fairly reliable. Too much pressure and they may break.
76-85 - Pretty solid guys. They can take some punishment. They may break but they come back fairly easily.
86-95 - Here are the elite, paratroopers, early SS, Marines, Rangers, Commandos. They don't break easily and in usually one turn are back in the fight
96-105- Fanatical, determined, they keep coming. Cossacks or Cavalry charges, Banzai attacks, suicide missions.
105 plus - Only killing them will stop them.
Experience
40 or less - Very inefficient. They get killed easily.
40-54 - Little experience with weapons but not much. Don't count on their accuracy or survival in a hot firefight.
55-64 - Fair at both the offensive and Defensive types of fights. They use their weapons but are light on results
65-74 - The average soldier, GI, German, etc. Holds his own and does a fair job of staying alive
75-84 - There are a few marksmen in the group. They'll get some kills, and do a pretty good job of surviving.
85-94 - Good shots. They get kills and a goodly number of them. They know how to use defensive tactics and don't take many casualties unless overwhelmed.
95-104 - Pretty deadly. They kill something almost everytime they fire.
105 plus - Get in their sights and you're a dead man!
The leaders also play an influence. Their values correspond in their influence on the men they control. In cases of rally, leaders roll the dice too. A good leader can keep average troops in much better shape than without him. A poor leader can be the death knell of a good squad or team. All of the units in SPWAW follow tables, depending on the year and the country. Germany in 1941 is tough, but by 45, somewhat weaker. Japanese are fanatical. Allies on the other hand begin low and improve a little each year until the roles are almost reversed.

Q. How is command & control best used?

A. Command & control requires a different way of playing and thinking.:
1) Think platoons when you maneuver, not squads. With C2 on the game is not about squad movement, but Platoon movement, your squads are "distributed steps" that make up your platoons.
2) Think ahead. You need to plan your units objectives at least to some extent or you will run out of orders and your units will get "stuck". An artificial penalty? Sure, but if you maneuver by platoon (meaning conduct your bound and overwatch by alternating platoons, not squads within platoons) it actually doesn't work half bad...
That's really what they are about. More to limit what a player can do, not to really simulate C3.

Q. What is defend mode?

A. Defend mode is really a "transition" between troops that are oriented toward advancing toward their objective, and achieving "in cover" status. "In cover" is really more "improved position. That is why tanks can "dig-in". Its more moving around within the hex to find a "sweet spot" in the "micro-terrain" within the hex. That is why it takes a few turns to find it, and its assumed engineers are more better trained in "terrain analysis" and speed the process. So defend means "searching for an improved position" more than "digging holes in the ground".
The effect of Combat friction is shown in the reduction in movement points for being "close to the enemy" (asterisk *) or shot at within 2 turns(pound #)
So what you have is really three types of cover.
Fortifications...Serious protection, concrete or wood superstructure
Entrenched...Improved positions, maybe some overhead cover, organized defensive position

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In Cover...hasty defensive position, scraping out a hole with your helmet or an entrenching tool, hiding in some undergrowth or tall grass, etc.

Q. Smoke doesn't seem to work as well. Has something changed?

A. Smoke reduces the chances you see things, it no longer totally blocks line of sight, (at least you have to lay a LOT in that mode) .If you know where something is, you have to lay a lot of smoke to "break lock" - it is no longer a "deflector shield" you raise AFTER someone has spotted you! If you pop it and run away, then the enemy will have a more difficult time spotting you through the smoke in the new hex through the smoke. But if you just pop it and sit there, after the enemy has targeted you, it doesn't do much. This is smoke's realistic role as an obscurant, not impenetrable armor.

It is most effective if you use artillery to lay it IN ADVANCE so you are moving up behind and through it where it lowers the enemy chances of spotting you in the first place. Smoke will also drift around ad lasts for a more variable time period.

Q. What is suppression? How does suppression work ?

A., Suppression is the measurement of the combat worthiness of a unit. Suppression goes up to 99, 0 suppression means you get the best hit chances. Once you start getting shot at, you suffer about a 25-50 degradation based on experience.. The first few points of suppression do the most, once you get over 20-30 its more a matter of how far you head is between your knees... Every time you "rally" suppression is cut in half but once you get shot at you are stuck at 1 minimum. Every "*" when a vehicle is hit means a system or crewman is knocked out. The more stars the more suppression vehicles take.

When your suppression reaches a certain fraction of your morale you become pinned (buttoned for vehicles), then retreated and finally routed, as you rally the suppression below the thresholds, you get improvement in status. IF you keep shooting at retreated or routed troops, occasionally they figure its better to go down fighting and spontaneously go to pinned and stop running away. Russians in delay or defend mission can "fanatically" go from routed or retreated back to good order again.

Q. Why are tanks getting little or no suppression from small arms fire?

A. They are getting suppressed, but the improved "end of turn suppression removal" is likely removing the little they get. Depending the situation (friends nearby, entrenched and hidden status and the proximity to an "HQ tent") some suppression is removed at the end of the turn whether you rally or not. Tanks inherently "unsupress" quicker than transport classes and infantry.

Q. I am tired of this battle. How do I quit and get the results?

A. Use the F9 key to surrender and you will get the results of the battle to date

Questions about scenario designing

Q. How do you set up and use reinforcement hexes?

A. Reinforcement Hexes are used to set up delays in bringing units into the scenario. Reinforcements are set from the deploy screen, reinforcement hexes (where they will enter) are set from the map editor screen.

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1. Go to the map editor and click on "edit."
Reinforcement hexes are numbered 1-4 only in the deploy screen, NOT HERE. Remember that.
Now each side has four reinforcement hexes, and they are numbered thusly
0=side 1 retreat hex
1=side 2 retreat hex
2-5 = side 1 reinforcement hex numbers.
6-9 = side 2 reinforcement hex numbers.
To make a hex a reinforcement hex, click on it. Then type (if you are side 1) numbers 2,3,4, or 5.
If you are setting reinforcement hexes for side two, you would use numbers 6,7,8,9.
Now it is VERY important to remember that when you go BACK to the deploy screen to assign units as reinforcement hexes, the numbers in the map editor no longer count.
This means that side one has reinforcement hexes 1,2,3, and 4 (even though in the map editor they were numbered 2-5).
The same with side 2. Now in the deploy screen, they are numbered 1,2,3,4.
Example:
Do this in the game as I go.
1. Open the game, Go to map editor, edit.
2. Find hex 2,2. this will be our reinforcement hex.
3. Now, simply click on it (2,2). Now type "2" You should now see a reinforcement flag in hex 2,2.
3. Close the map editor.
4. Open the unit deploy screen
5. Find that reinforcement flag you just typed in 2,2. Run the cursor over it. It should say reinforcement hex 1.
And the same system applies with the others.

Q. How do retreat hexes work?

A. Retreat hexes are set in the same way as reinforcement hexes, from the map editor screen. Open the map of the scenario with "edit." Then click on the hex you want side one to retreat through. Then type "0" (zero) for side one (left side). Net click on another hex on the other side of the map and type "1"(one) for side two (right side)

Q. How do the different Victory objectives work?

A. There are several variations for the layout of Victory objectives which can be used in scenario design.

1. End of Game VO. This is the standard type historically used in the SP series. The points are awarded to the last player to control the VO at the end of the game
2. . Control VO. When using this option the player only receives victory points for the turns the player controls victory hex and not for having it at the end of the game only. If the Control Victory hex is set at 25 points per turn and player 1 held the Control Victory hex for 3 turns and player 2 for 5 turns of an 8 turn game then player 1 would get 75 Victory Points and player 2 150 victory points at the end of the game
2. Exit VO. When using this option the player will receive victory points for each of the players units that is able to exit off of the map. If there are any Exit Victory hexes in a scenario, the other side gets ½ the escaping side's starting force value as victory points immediately. Units exited through the Exit Victory hexes now score 3x their (and their passengers') value as victory points.
3. Strategic VO: When using this option the player will have Strategic Victory hexes. Strategic Victory hexes have a set victory point value and once captured can not be recaptured during the game These make perfect types of victory hexes that have things like a supply depot on them
4. Reactive VO: When using this option the scenario designer can place a Reactive Victory hex on the map and it will be set at 19 victory points by default. The victory hex will not be visible to the human player at all and the AI will ignore it since it is less than 20 victory points. When the human player moves over the Reactive Victory hex +5 is added to the victory level. This

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will now make the victory hex worth 24 points and now the AI will attempt to go after it. This is a great way to get the AI to react to human players and spice up a scenario. None of the victory points assigned to these hexes are counted at the end of the game.

6 Pop Up VO: When using this option the scenario designer can place any of the Victory type hexes listed above and start them inactive at the beginning of a scenario. Neither the AI or a human player will know the turn the VO's are to become active. Once the turn set arrives the victory hex is shown on the map and as long as the value is higher then 19 the AI will attempt to capture these new victory hexes as well.

Q. How do I set up Victory Objectives?

A. In the Deploy screen click on the VO button(red & white flag picture). You will be placed in the Victory Objective screen. Use the green flag button to select the VO type and the blue flag button to set a reaction time, if desired. Place you objectives and set the control and points, the use the next button to go to the next objective.

Q. Can I mix Victory objective types?

A Objective types can be mixed in a scenario

Q. What are reaction turns?

A. In the Steel Panther Series you can set a time for units to "react" or start moving. Reaction turn is used in conjunction with waypoints.
This is done in the scenario editor. Are you designing scenarios?
It works like this.
1.After you have selected and placed your units, you have the option to set a time for them to react or move and also the directions of their move.
2. This is done by first clicking on the top right hand corner button in the Unit deployment screen in the editor.
3. Now you see on the right a listing of all the units and formations for one side. .In the center you'll see a list of the leaders for each formation. To the left of the name of each leader are two buttons. One shows arrows. The other the head of the leader.
4. First click on the head of the leader. It changes to a computer. Now in the lower left hand corner of the screen is a button titled "reaction."
5. Click on it. Now the screen turns blue at the top. Type in the turn number you want to activate the unit. If you type in a 5, the unit will start to move on turn five. That is its reaction turn.

Q. How do you set waypoints?

A.After setting the formation to computer control and setting the reaction turn, in the same screen, click on the arrow button. The computer changes the screen to the units deployed. A new screen of the battle map opens. Now simply click in a path you want the unit to follow. Each time you click on a location, it is a waypoint. You can have up to 10 waypoints for that unit. You can erase waypoints by clicking on the cancel button, but it cancels all waypoints and you have to start over. Make sure that when you set waypoints that the last one ends up in the objective you have set for the formation.

Q. What are formation objectives? How are they used?

A. Formation objectives are used to set objectives for individual formations within the scenario. To set a specific objective for a formation, click on the blue flag in the Deploy screen after highlighting a formation. Then click on a hex. Look at the bottom of the screen. That is now the formation's objective. If you want all of your units to have the same objective, click on the Green flag button. Don't use the green flag unless you want the objective hex for ALL formations the same.

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Q. Are Reaction turns, waypoints and formation objectives all necessary for scenario design?

A. All of these features, Reaction Turn, Waypoints, Formation objectives, and reinforcements, work properly if used properly. The problem is that they are often not used properly and therefore you don't get the desired result. It follows a certain logic.
We'll bypass reinforcements and reinforcement hexes.
Here we go.
If you are going to use Reaction Turns, waypoints and objectives you should use them together.
1. The formation, in order to use any of these, should be set to "computer control"
2. Once you set a formation to "computer control" you must then tell the computer what you want it to do with that formation.
If you don't the computer will do what it thinks best, including moving the units even though you don't want them moved.
3. Naturally, while under human control, the units will do what you tell them too. They won't move unless you tell them to. They won't fire (except op or reaction fire) unless you tell them to.
4. When you set a unit under computer control, you must then tell the computer how it should use them.
==========
Now to some particulars.
Let's take a hypothetical formation, a US rifle platoon. It is composed of B0, B1, and B2.
The US side is the computer side. I am the human player and I have the Germans. This is a German advance vs a US Delay scenario.
Here are the steps you follow: Click on the H button at the top right of the unit deploy screen in the editor.
1. Set the formation "B" to computer control. Do that even though the computer is already controlling the US side. You do this in order to specify to the computer how the unit is to move and be used by the AI.
2. Now since the scenario is US Delay, what do you want formation B0 to do?
a. If you want it to stay in place throughout the scenario without moving, set B formation reaction turn to 99. Put a formation objective flag in the B0 hex. It should stay in place until it retreats or dies, if done correctly.
b. But say you want it to move beginning at turn 5. You want it to go to objective flag in hex 22, 50.
c. Set B formation from defend to advance. Set the reaction turn to 5 for formation B. This means that formation B will advance, but not before turn 5 (give or take a turn or so...computer random selection).
d. Now go back to unit deploy screen, click on unit B0 and then set the formation objective flag (the blue flag) in hex 22,50.
Now come back to the "H" screen where you were before.
e. Now you want formation B to follow a certain route. That is where waypoints come in. You may want formation B to take an indiirect route to hex 22,50 in order to flank where you think the human player might be.
f. So you click on the two little arrows next to the computer for formation B.
g. A new screen appears. You find B0 (leader of B formation) on the map, and from there you go to the first spot you want formation B to go to. Click on it. A yellow line is seen from B0 to your first waypoint. Continue doing that for up to 10 times. I would make sure that the final waypoint ends at hex 22,50 (where the blue formation objective flag was placed).
So now you have set formation B to remain in place till turn 5 (this may vary a turn or two. The computer does this randomly). Then it will begin moving from waypoint to waypoint till it reaches 22.50. If it becomes involved in combat, it will fight normally, but when it can, it will move on till it eventually arrives at 22,50 where it will remain unless killed or routed.

Q. I designed a scenario and set waypoints and unit objectives, but they aren't working. They all say objective 222,222.

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A Waypoints and unit objectives will work as long as they are set as the last item in scenario design. If you purchase more units after setting the waypoints, etc. the waypoints and objectives will be erased and you will have to start over. It is best to have a save before purchasing additional units. This is why scenario design requires careful planning to avoid this situation

Q. Why does pavement, sandstone & dirt show differently on elevations?

A. This is a known problem. One way to avoid part of this is to use base #2, gravel, instead of cement. It does not have that blocked appearance that cement does. You can also feather the edges of cement with gravel. Another possible solution is to put the gravel in first, then the grass

Q. How do I add on board artillery and rockets to my scenario?

A. Make the year 1949 and the month December and you will be able to buy on board artillery and rockets. Change back to the year of your scenario and save.

Q. How do I purchase trains for my scenarios?

A. Trains are under the Norway OOB and are purchased the same as on board artillery. Make the country Norway and the year 1949, month of December. The trains are under the Misc section in the purchase screen

Q. How do I put destroyed tanks in my scenario?

A. In the Editor deploy screen type the “U” key and you will be asked if you want to destroy the unit

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Design notes

The Armor Combat System

The “armor effectiveness” function used is based on a method that assumes the actual ballistic protection of armor varies not inversely with the cosine of the angle, but the cosine of the angle raised to the 1.6 power (see the work of Ogorkiewicz, Jane’s Tank Design, 2 volume set). Several sets of data both from web sources and from declassified post war documents, were used to refine the basic formula to account for both horizontal and vertical angle, vary the “power factor” (i.e.: the 1.6 the cosine is raised to) to match T/D data.

The result is that weapons are rated in a millimeter based “penetration potential energy” computed from a combination of “classical” energy based penetration, and “book” field results. The value is generally higher than standard references give, but when compared to the “ballistic adjusted” armor values, gives good agreement with published sources for vertical slope and range. More importantly the numbers are consistent, so variation in methodology of penetration determination are taken into consideration.

Using variability in angles results in good distribution of outcomes, based on the geometry involved. There may be occasions where the specific angles involved may lead to a wide range of results in a specific case, but they are appropriate to the case. Say, for instance, you hit the front turret of a KV-1 from a hill at 25 degrees in the horizontal and 5 degrees up in the vertical.

The small slope of the front turret is reduced to next to nothing so the vertical angle component is small. Couple this with the horizontal angle varying plus or minus a handful of degrees or so and the difference is between say 20 and 30 degrees of angle. That is maybe 85-95 mm effective protection. Couple this with +/- ~10% in penetration variation to account for the unknowns in round ballistics. For example, a 75L43 at 1000m may have a range from say 90-110. So the overlap is small, but you will get some penetration opportunities.

Now if you hit the flank (small chance) at 65 degrees the +/- angle from 60 - 70 degrees is on the order of 160-290mm effectively. It would take a Tiger to have a snowball’s chance of punching through this, and even that shot would need lots of luck have a penetration chance and avoid a ricochet because of the steep angle. Such an impact may stun the crew, or do damage to external systems (like gun, optics, etc) even if a penetration does not occur.

So while large variations are still possible - it is only where they are appropriate based on the geometry, not universal and uniform across the board. While some argue persuasively the hex grid is dead and precise tracking of the exact movements of all objects on the battlefield is "most realistic", our assumption is that the precise movement is subject to significant uncertainty (pitch, turn, roll, turret swing, etc) that are extremely difficult to model.

So we tried to turn one of the admitted limitations of the hex grid, into a source of randomness. We are attempting to strike a balance between "game feel" and the physics and assume that we can only have an imperfect knowledge of battlefield "ground truth". So while other systems may have more technical fidelity, the data on which that fidelity is based is assumed from a perfect knowledge of the battlefield – a questionable axiom.

Since the hex grid prevents such precise knowledge, we worked from the point of view that we could not assume such perfect knowledge anyway, reducing the significance (but not eliminating it entirely :-) of the limitations of the hex grid.

This is as much design art as science and as always in the SP series allow the player the ability

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to tweak things to his liking through preference settings and OOB edits. The system currently being tested has room for growth and refinement, but is a HUGE advance over the original!

The new system is much less binary. It now generally takes 2 or 3 penetrating hits to kill a tank, but with incremental system reduction with each. The first may cause hull damage and kill a crewman, causing a big suppression hit and possibly loss of all remaining shots. The next hit might cause vibration damage to the engine and reduce the speed permanently to half, or jam the turret in place. It might then be the third that finally kills the last crewman, or causes the ammo store or fuel to brew up.

You really need to be close on a hill to get good top damage - the angles are extreme and ricochets very likely. If you move around on a hilltop you risk exposing your belly to units immediately below you (within 2 hexes in range and at least 5m in height). Once you dug-in on a hilltop, you are considered “hull down” and are harder to hit and only turret hits can occur.

As to the armor modifier, the starting point is not "perpendicular" but whatever the target angle from the firer to the target is, based on "center hex to center hex" and "freezing the problem". From here random modifiers are added to the horizontal and vertical angle components (+ and -) to account for Mr. Murphy's effects in the positions and angles at the point you "froze" things to take the shot, which one can look on as the "baseline".

The vertical random one is more negative than positive since the shells tend to arc, but the exact exterior ballistics are not accounted for explicitly. The horizontal one is straight +/-.

The effective armor value that is actually passed for penetration comparison may be larger or smaller than the "baseline". So it effectively it’s a +/- modifier - not just negative - but one that varies the outcome a differing amount based on the geometry. Where it is appropriate to have a large variation, there is and where its not, there isn't.

Anything from 50 cal on up can do "critical" non-penetrating damage ranging from "toolbox" (representing superficial damage that still can add up over time) to a "turret ring" hit that (based on some armor, pen and warhead size checks) represents a catastrophe that knocks out the vehicle. The checks prevent a 50 cal from knocking out a Tiger, but with LOTS of luck, could pop a track on it, damage its optics, knock off its radio mast, or other such stuff.

Thus all rounds are basically treated the same. "SABOT" rounds are attenuated faster because they have a shorter "max range" to be attenuated over. In reality ADPS should carry a lot better than APCR/HVAP, but SP lumped them all together and we are stuck with that for now.

Much of the differences in calculation penetration fall off at the ranges commonly encountered would be lost in the "noise" of the random factors in the model so we are not sure the overhead to calculate trajectories and velocity falloff explicitly with range would be readily apparent.

For example, one source gives a falloff in penetration of a German 75/L48 of from 106 - 64mm over 100m - 2000m. The linear approximation we use would go from 106 to about 70, a little over - in other cases a little under - but generally within 10% which is the +/- random variable we put on penetration anyway. So to me it’s a decent approximation given the scale and scope of the game.

Penetration tables have been the bread and butter of mini's rules, but assume that you "freeze the battlefield" like one of those scenes in the movie "The Matrix" and watch the round fly within a scene that is known exactly. But they tend to oversimplify the dynamics of the battlefield.

We have made an assumption in redoing the armor system that the exact state of the battlefield is not perfectly known at the instant the player decides to fire. So while a table could be made based on ballistic calculations of the exact path and velocity of the round (given a whole bunch of

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assumptions of ballistic coefficients) of penetrating power at a given range in tenths of a millimeter, the "effective armor" it is compared to could vary by +/- 50 mm or more depending on the angles - if it doesn't ricochet entirely!

So as a player we could give you a nice penetration table, but it would not do you much good in trying to figure out your exact chances of penetrating in any case, because you don't know the exact angles the game will use for the shot. We give the range 0 penetration and the base armor and vertical slope angle in the encyclopedia, there is the small round to round variation in penetrating power, and the small random variables in horizontal and vertical slope. Well-sloped armor at an angle gives a higher chance for a ricochet, especially at high T/D ratios or for Sabot. The difference between 50 and 60 degrees is a lot - between 0 and 10 degrees miniscule - so the effect of the randomness is aspect dependent.

If you have a good clean perpendicular flank aspect against a Tiger or KV-1 say with non-sloped armor- you can look at your penetration and the targets armor and have a decent feel for penetration chance. A 25-degree front aspect on a T-34 could result in anything from ~90-5000mm in effect depending on which face you hit. (There is always a slight chance of a normally non-penetrating "critical hit" too :-)

The bottom line is that we wanted to adjust the game so more realistic tactics paid off by more realistic portrayal of weapon effects within the basic database limits of the game. But not make the game a study in pouring over penetration tables and taking several minutes to decide if each shot should be taken. We made a huge leap, but still include some abstractions we feel are appropriate (or could not be avoided).

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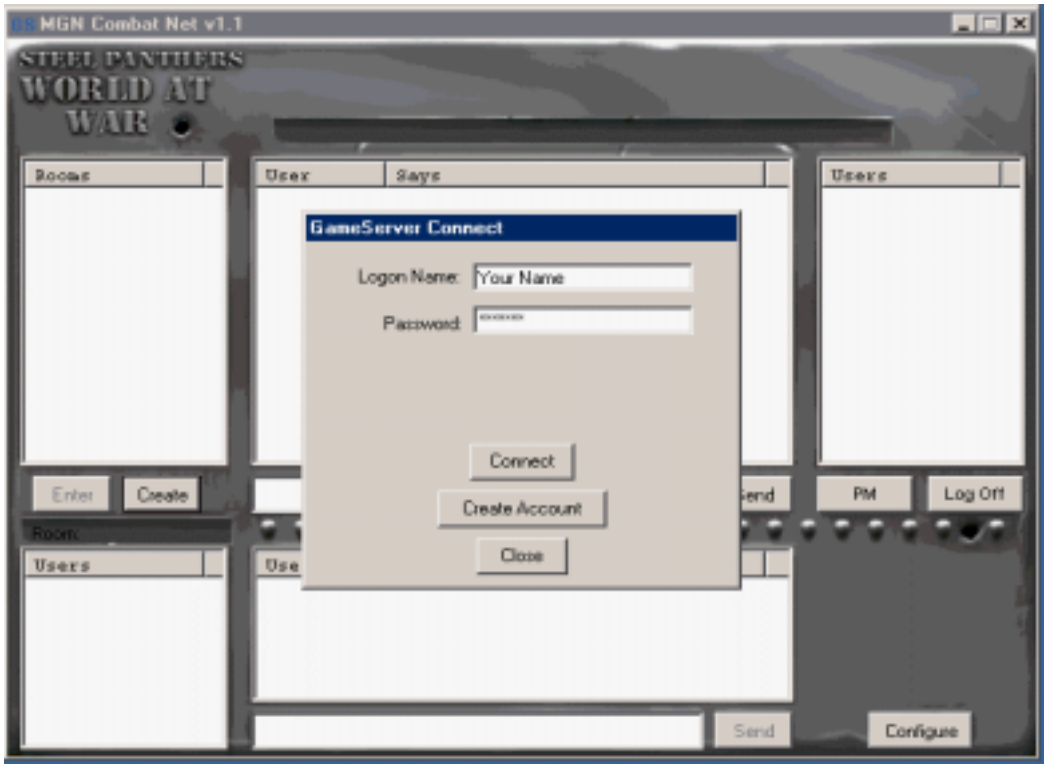
Online Play with Combatnet

Introduction

Combatnet is a new service designed to enable users to gather and play our games. Combatnet client is software that is installed on your computer that is connected to the Internet. Users can then access COMBATNET. Once accessed, users can chat and organize to play games. COMBATNET performs the same functions as some of the popular online gaming services such as MPlayer, Battle.net and the MSN Gaming Zone.

Connecting to COMBATNET

To connect to COMBATNET using our stand alone client the user must first download and install the stand alone client (this is already done if you have installed one of our games).Once the client is installed it should be launched from the Desktop menu. If the user already has an account created they can proceed and log in. If not an account can be created and then the user can log in. After logging in proceed to the “Using the Game Lobby” section.



Specifying "mech.exe /i" in the COMBATNET filename box will allow the skipping of many of the online setup screens. It automatically fills in the correct ip address, uses the saved name, and attempts to connect three times (just in case the server is slower than you). IMPORTANT: make sure that SPWAW knows what your ip address is. Check this by running spwaw.exe and clicking "online". If the wrong ip address is shown here (for example, if you are using a proxy or NAT to reach the internet), do not use the /i switch!

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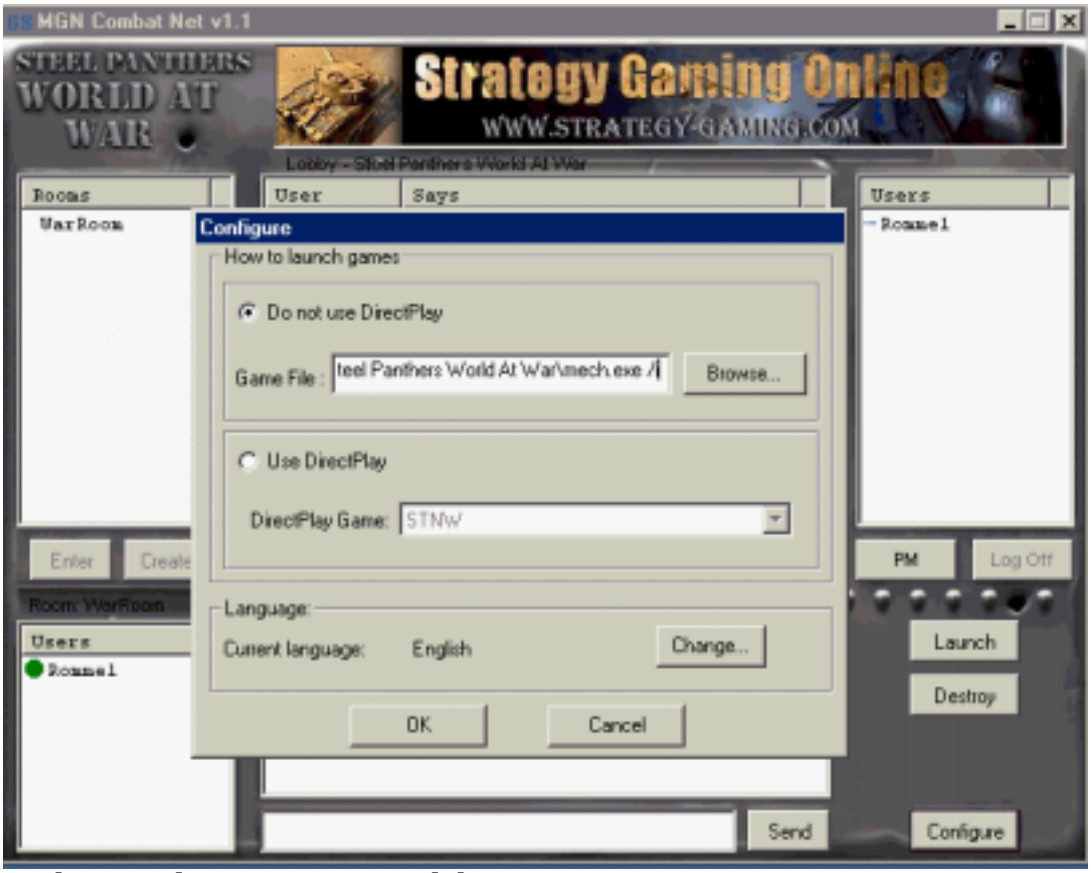

Using the Game Lobby

After successfully logging on to COMBATNET and selecting your desired game you will be in the game
lobby. The game lobby is the place where players enter the 'Steel Panthers World At War' game lobby. Here you can play games with other 'Steel Panthers World At War players. Some features of the game lobby are:

1) Chatting with other players.
2) Creating rooms to start a game.
3) Destroying rooms.
4) Entering existing rooms to join someone else's game.
5) Starting games.
6) Configuring games to start automatically when the game is started.
7) Logging off of COMBATNET.

Describing each area of the Game Lobby

The game lobby is divided into two main areas, these are the *Main Chat Area* and the *Game Room Area*. Each of these areas shall be described below.

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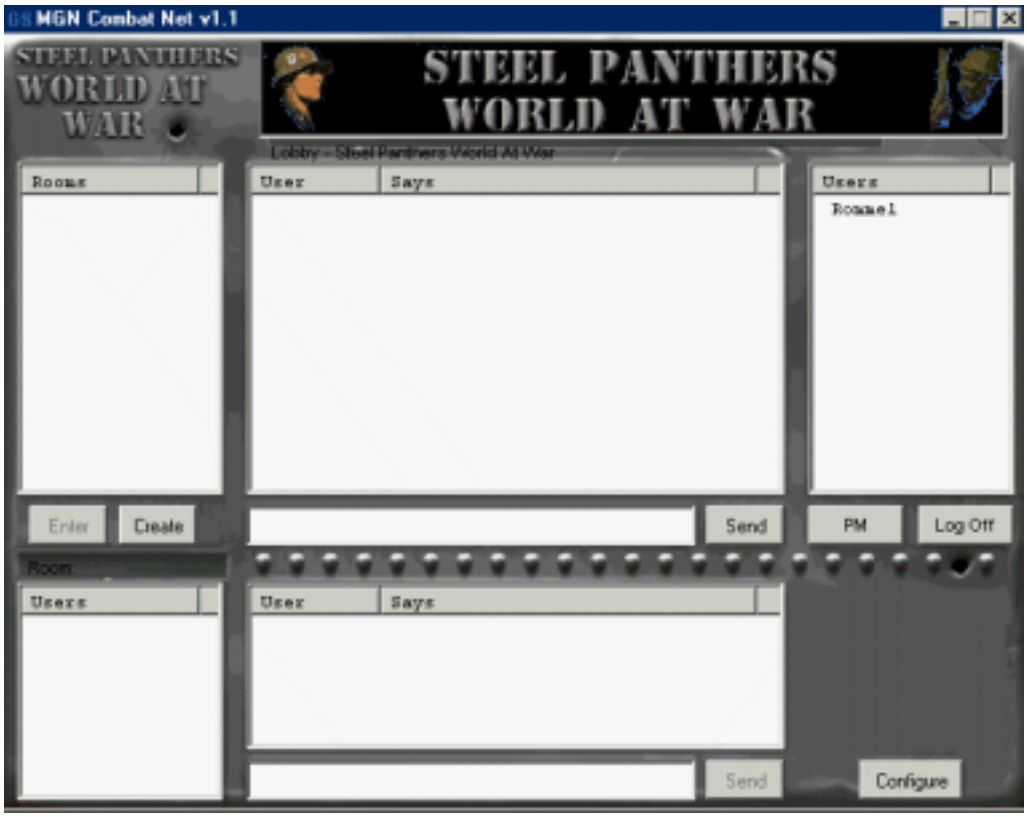
Main Chat Area: This is where all users go when they first enter a game lobby. Users can chat with others, create or enter game rooms or log off from here. The *Main Chat Area* is located in
the upper portion of the game lobby. There are three panes in this area: *Rooms Pane*, *Chat Pane*, *Users Pane*. The *Rooms Pane* contains a list of all of the rooms in this game lobby. The *Chat Pane* displays all of the messages typed by users in the *Main Chat Are*a. The *Users Pane*
contains the names of all of the users currently in this game lobby.
Game Room Area: This is the area that users go to when they either create or enter a game room. The *Game Room Area* is located on the lower section of the game lobby. The *Game Room Area* is composed of two panes: *Users Pane* and *Chat Pane*. The *Users Pane* lists all of
the users currently in this game room. The Chat Pane displays all of the messages typed by users in the room.



Chatting with others

When you're in the main chat area of the game lobby you can chat with others by entering text into the text box of the upper chat area and hitting enter or pressing the S*end* button. Your message will be displayed in the main chat area. You can also chat with others while in a game room. Enter the desired text into the text area of the room area and hit enter or press *Send.* Your message will be displayed in the room area's chat window.

When chatting in online play, type "team: " to send a message to all your teammates. To send a message to one player in particular, type their name, followed by a colon. Proper capitalization of their name is not necessary.

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Examples:
team: let's sneak around to the north
only goes to your teammates

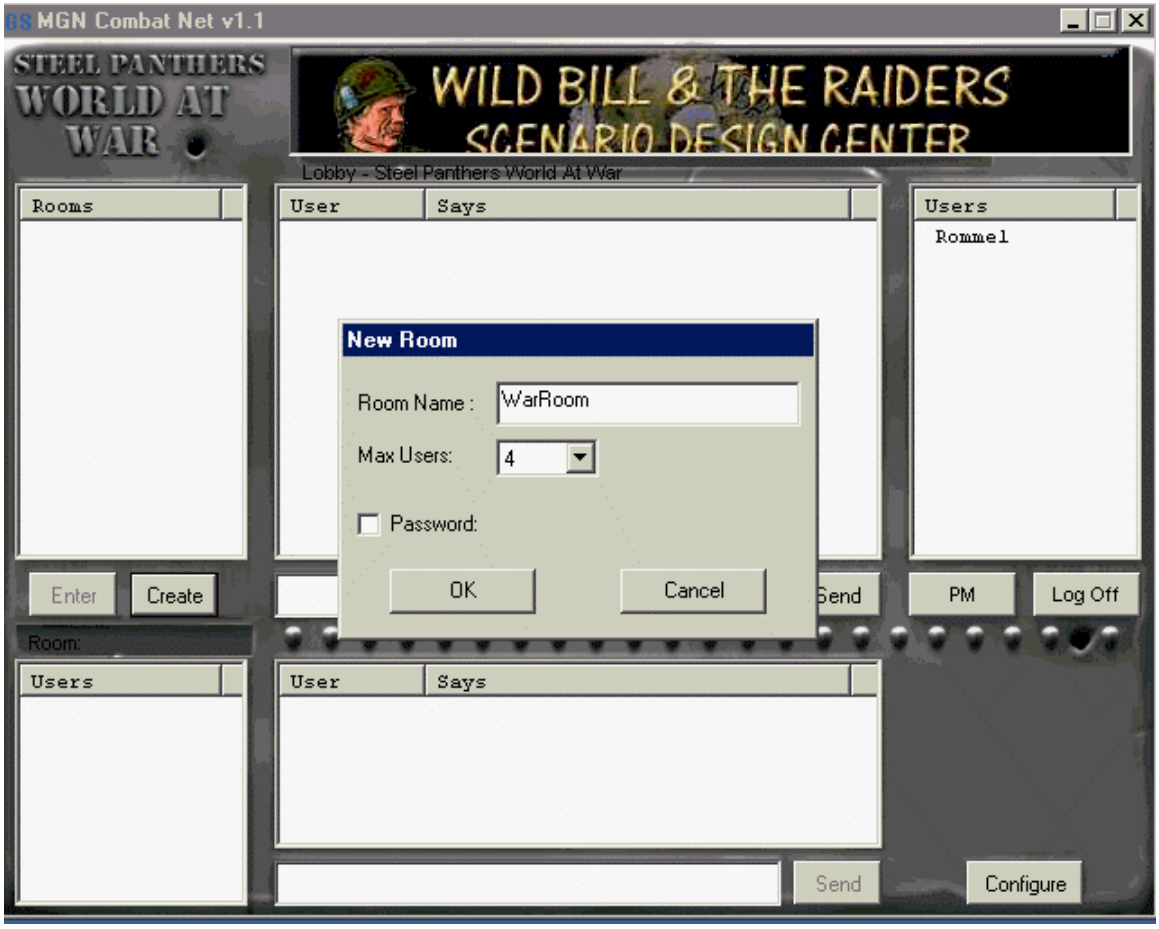
paul: what are you doing?!?
only goes to the player named paul

i rule!!!
goes to everyone

Waiting for Opponents

Once you have looged into COMBATNET you have the option of entering a game immediately or you can leave the game room to read the Forum news or browse the web. Once someone else enters the game room, you will be notified by a horn sound similar to a destroyer under way and you will be sent an instant message telling you who is in the game room. You can then decide to play by answering back or you can wait for another potential opponent.

`Creating a new room`



You can create a room to gather other users to play a game. Press the *`Create`* button in the *`Rooms`* area to bring up the *`New Room`* dialog box. Enter the room name and set max users. If you want the room to be password protected, check the password check box. A password edit

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box will become visible. Enter the desired room password. Hit the OK button or press <CR> to create the room. If the room is successfully created it will show up in the *Rooms* area in the upper left hand section of the game lobby. Others can now enter this room.

Destroying a room

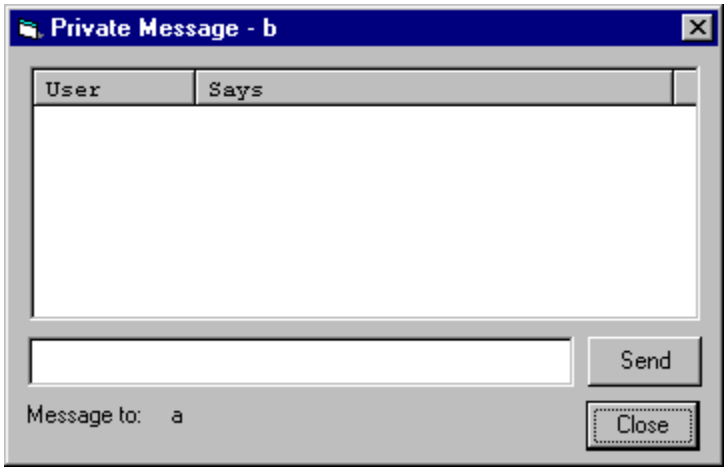
After creating a room, at any time you can press the destroy button in the room area to destroy this room. All players in the room will no longer be in the room and the room name will be removed from the *Rooms* area.

Entering a room

To enter an existing room, select the room in the *Rooms* area and press *Enter.* If a room has a lock icon next to it that means that the room is either full or that the game is in progress. A room that is full or where the game has already started cannot be entered.
If the room is password protected a password dialog will be displayed. Enter the appropriate room password to enter the room.

Sending Private Messages (PMs)

When a user wants to send a PM to another user they must select that users name in the main lobby user list and hit the PM button to bring up the PM dialog box. Or they can right click on the user in the user list and select PM from the pop up menu.



Once the PM dialog box is displayed, enter message and hit send or <CR> to send the message. When the other user receives the message their PM dialog box shall be displayed. If the user is playing a game, a PM cannot be sent and an error message will be given. The user receiving the PM can reply to the PM by entering text into the edit box and hitting send. The PM dialog box can send and receive PMs to multiple users at once. Receiving PMs from multiple users just happens.

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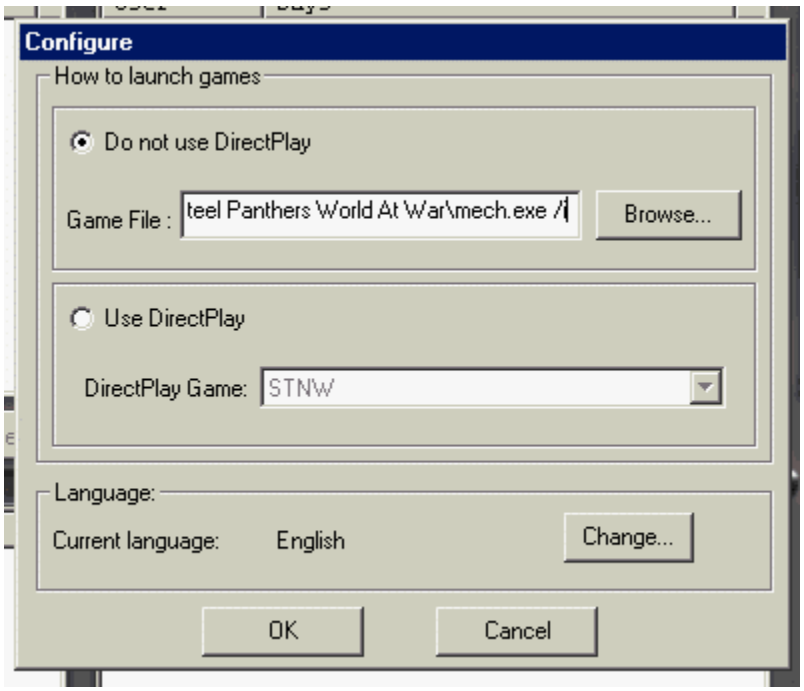
All messages go into the same dialog box. Only the users sending PMs to each other can see the messages.

If you receive PMs from multiple users in your dialog box you can pick and choose who you want to direct messages to. To change who you are sending PMs to, simply click on the user in the chat area of the dialog box. Notice how the 'Message to:' changes to the user you are now sending to. Now all PMs will be directed at that person. Below is the PM dialog box:

Configuring a game to start automatically when a game is launched

When a game is started from within a game room COMBATNET will automatically start the game for everyone in the room. COMBATNET must be configured to know the location of the game so that it can start it. To configure a game press the *Configure* button on the lower right hand portion of the game lobby. The *Configure* dialog box shall be displayed. There are two ways to configure a game to start. Either using DirectPlay or by having COMBATNET launch the game.



If the game you are playing does not support DirectPlay select the "Do not use DirectPlay" option. Then enter the location of the game executable that goes with this game lobby. If desired use the *Browse* button to assist you in finding the game's executable file. When completed COMBATNET will now start the game automatically when the game is launched. If the game you are playing supports DirectPlay select the "Use DirectPlay" option. From the combo-box select the appropriate game.

Starting a game

After creating a room you must wait for the desired amount of people to enter before you start the game. When the desired number of people have entered you can start the game. To start the game press the *Launch* button from within the game room. The game will start and everyone in the game room will have their game automatically started. If the game supports DirectPlay all of the users should automatically be placed in the game's multi-player chat screen.

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Connecting to the game creator's IP address (This section does not apply to DirectPlay launched games)

COMBATNET supports all IP based games. If each person does not have the game configured to start using DirectPlay (i.e. the game doesn't support DirectPlay) then after the game is launched from within a game room each person in the room will have their game automatically started. At this point each user must select the multi-player section of their game. Then proceed to the IP based game section. The person who created the room must create a new IP based game. All other users must join an IP based game and enter the IP address of the room creator. COMBATNET automatically stores the room creator's IP address into the clipboard of everyone in the room. So when the game prompts for an IP address to connect to, simply type 'ctrl-V' to paste the correct IP address (note: some games clear the clipboard so it is required to obtain the IP address before hand). At this point all players should be connected to the same game. Now follow the instructions provided by the appropriate game manufacturer for starting the game.

User and Room Statuses

COMBATNET displays various icons to signify certain conditions. Below these icons shall be explained:
User Icons when in the main chat area. These icons appear to the immediate left of the user name:

- User waiting in a game room.
- User is playing a game

User icons when user is in a game room. These icons appear to the immediate left of the user name:

- This user has a high ping to you. It will probably result in a slower game.
 - This user has a medium ping to you. This might cause a slower game.
- This user has a low ping to you. This will probably mean fast game play.

To determine a user's ping to you, or his IP address, simply hold your cursor over the user's icon when in a game room. The user's ping and IP address will be displayed.

Game room icons. This icon appears in the Rooms area to the immediate left of the room name.

- This room is locked and unavailable. Either the room is full or the game has already started.

Logging off of COMBATNET

When a user wishes to leave a particular game lobby they must log off. This is done by pressing the *Log Off* button which is located below the users area in the main chat area. You cannot log off when you are in a game room, you must leave the game room first. Also, you can log off by closing the web browser or closing the stand alone client.

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Abbreviations

AA — Anti-aircraft weapons; ranges from machine guns to artillery
AAMG — Anti-aircraft machine gun
AFV — Armored fighting vehicle
AT-Gun — Anti-tank gun
ATR — Anti-tank rifle
BAR — Browning automatic rifle
BN — Battalion
CS Tank — Close support tank; tanks which fire low-velocity rounds, good for killing infantry, but not very effective against other tanks
DUKW — Amphibious Truck
Flak — Anti-aircraft weapons; explosive rounds from medium to large bore guns
FJ Infantry — Fallschirmjaeger; German elite paratroops
HHC — support units, HQ's and HQ companies
HMG —Heavy machine gun
HT — Half-track; a vehicle with wheels in the front but treads in the rear
IFV — Infantry fighting vehicle
JPz— Jagdpanzer-Anti tank
LCA — Landing craft assault
LCS — Landing craft support
LCV — Landing craft vehicle; the large landing craft which can carry tanks
LMG — Light machine gun
LVT — Landing vehicle: tank
LVTP — Landing Vehicle Tracked Personnel
MMG — Medium size machine gun
Plt. — Platoon
Pz — Panzer
Recce — Reconnaissance unit
RR — Recoilless Rifle **Sec.** — Section
SMG — Sub-machine gun
SP — Self-propelled
SPA — Self-propelled Artillery
SPAA — Self-propelled anti-aircraft
SPG or **SP-Gun** — Self-propelled gun; normally is used in reference to some sort of artillery piece that has been mounted on a motorized tank type chassis
Sqd. — Squad
TD — Tank destroyer
TMG — Turret mounted machine
VG — Volksgrenadier; German auxiliary infantry

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Glossary

AP —Armor-Piercing rounds are most effective vs. armored and other targets such as bunkers.

Battle Points — Equipment is purchased with Battle Points. Battle Points can also be acquired in campaign play and used to repair or upgrade Core units and formations after each scenario.

Buttoned — When a tank is under fire and its crew closes its hatches and seeks refuge inside. This also limits the tank's visibility.

HE — "High Explosive" rounds are most effective vs."soft" targets such as infantry.

HEAT — High Explosive Anti-Tank rounds which use concentrated heat when striking a target to burn or melt through its armor.

Hit Chance —This is the chance that the firing unit will actually hit the target. It is influenced by the following: range to target, type of terrain target is in, if target is moving, firing unit's movement status (positioned, moving, moving fast, pinned), firing unit's experience and level of suppression, firing unit's leader rating for either infantry or armor, and the weapon being fired. In addition your Hit Chance percentage goes up with successive shots at the exact same target.

HVAP — High Velocity (or Hyper Velocity) Armor Piercing. This is used as a generic term to describe all the various types of kinetic and kinetic/explosive armor killing rounds, including modern sabot, fin stabilized and similar ammunitions.

Line of Sight (LOS) — This is a unit's field of vision or what it can see. Units are able to target enemy units only once they can see them, or they are in "Line of Sight."

Main Gun Information — The first number is the size of the shell normally in millimeters. Later numbers are model designations which do not coincide with the WWII 'L ###' system of rating barrel length.

Penetration — When shooting at armored vehicles the shell must first "Hit" the target and then the shell type/size is compared to the armor values of the hull and/or turret of the target to determine if the shell penetrates the armor of the hull or turret to destroy the target.

Spotting —The ability to spot enemy units.

Strike Element — Aircraft assigned to provide tactical support.

Suppression — Suppression points measure the unit's chance to recover from rout, retreat, or pinned conditions and are based on the unit's morale. When men are killed, leaders lost, or a unit is near a hex, which is being bombarded by artillery, the unit suffers the most suppression.

WayPoints — When plotting movement for a unit under computer control use waypoints to set each destination hex. The computer follows the waypoints in the order given until the AI overrides them. All units under AI control follow all AI rules.

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Hotkeys

Deploy Screen Keyboard Equivalents:

1 - Reinforce toggle
2 - Auxiliary toggle
3 - Entrench toggle
B - Bombard with artillery
D - Edit selected unit (Editor only)
E - Entrench (Editor only)
F - Find selected unit
G - Go to next formation
H - Go to Headquarters Menu
I - Terrain effects screen
K - Set all units objectives to current hex
L - Load onto or with a unit
M - Toggle stance of selected unit
N - Next unit
O - Number of weapons (In Editor only)
P - Previous unit
Q - Change unit cost (In Editor only)
Q - Quit (In Editor sets unit modifier)
T - Start line
V - Show selected units area of view
W - New Headquarters
X - Place mines
Z - Set and edit victory hexes (In Editor only)
C - Clear darkened hexes

Hot Key Only On Deploy Screen:

Space - Show unit data
Period - Set game length (In Editor only)
R - Set maximum firing range
F1 - Assign selected formation to player 1 (In Editor only)
F2 - Assign selected formation to player 2 (In Editor only)
F3 - Assign selected formation to player 3 (In Editor only)
F4 - Assign selected formation to player 4 (In Editor only)
F5 - Assign selected formation to player 5 (In Editor only)
F6 - Assign selected formation to player 6 (In Editor only)

Battle Map Screen Keyboard Equivalents

Period - Stops video playback (hold key down)
; - Set objective for selected unit
- - Zoom out
+ - Zoom in
A - All formation toggle
B - Bombard with artillery

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C - fire individual weapons
E - Encyclopedia
Enter - Unit moves (chat in Internet Play)
F - Fire selected unit at it's current target
G - Go to next formation
H - Headquarters list
I - Terrain effects screen
L - Load selected unit
M - Toggle stance
N - Next unit
P - Previous unit
Q - End turn
R - Rally selected unit
S - Save game
T - Target unit
U - Clear darkened hexes and smoke
V - View recording of last player turn
X - Direct fire smoke
Y - Range
Z - Direct fire bombardment
Space - Show unit data
Tab - Show chat buffer
F1 - Help Screen
F2 - Time Out
F3 - Command Intervention
F4 - Reinforcement Request
F5 - Chat and Message Review
F5 - Color Choices Up (when entering chat)
F6 - Color Choices Down (when entering chat)
F7 - Unit View Radius: What the unit can see from that hex
F8 - Unit Movement Radius: Where the unit can move to from that hex
F9 - Surrender
F10 - Used by Roger Wilco for Internet voice chatting
? - Toggle ID Flags

Map Editor Keyboard Equivalents:

- - - Zoom out
- + - Zoom in
- B - Make beach/ocean map
- C - Makes city grid
- D - Set for secondary road
- E - Save map
- F - Set fill range
- G - Add map text
- H - Makes level 1 hills
- I - Shifts map north 10 hexes
- J - Toggle between jungle and trees
- L - Create beach and ocean
- N - Toggle scenario to be river crossing
- P - Set for primary road
- R - Set for rough terrain
- S - Set for stream
- T - Makes a tree hex
- U - Set for swamp terrain
- W - Set for water

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X - Clear map of terrain

Hot Key Only on Map Editor Screen

Enter - show selected hex (makes it blink)
; - Set small map (set map vertical hex limit)
Period - Toggle hex-sides
Z - Toggle current building lock
I - Map shift north 10 hexes
K - Map shift east 10 hexes
M - Map shift south 10 hexes
0 - Retreat hex for player 1
1 - Retreat hex for player 2
2 - Reinforcement hex #1 for side 1
3 - Reinforcement hex #2 for side 1
4 - Reinforcement hex #3 for side 1
5 - Reinforcement hex #4 for side 1
6 - Reinforcement hex #1 for side 2
7 - Reinforcement hex #2 for side 2
8 - Reinforcement hex #3 for side 2
9 - Reinforcement hex #4 for side 2

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Steel Panthers Arsenal: http://sparsenal.thegamers.net/index.html

The Armor Site: http://www.fprado.com/armorsite/main.html

Tankhead's SPWaW Resources: http://sites.netscape.net/rcclout

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OUR STRENGTH

We thank God for giving us the ability and strength to complete this project and follow on our dream. We also like to thank our families, girlfriends and friends for giving us their non-stop love and support during this project.

DEDICATION

This game is dedicated to all of the men and women who fought and died during The Second World War and of course the gamers. Please support the National World War II Memorial, gamers wishing to support our veterans can get more information from here **http://www.wwiimemorial.com**

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